THE FACTORS AFFECTING PRODUCT INNOVATION OF MANUFACTURING INDUSTRY IN MALAYSIA

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledge has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

(4) The word count of this research report is

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DEDICATION

This research is dedicated to all individuals who have contributed to this research, either directly or indirectly. In the progress of carrying this research, friends and families have been very supportive and kind. They have provided us guidance and motivation. Respondents were helpful and spent their valuable time on questionnaires. Besides that, all group members have worked hard and play their roles effectively.

Last but not least, we would like to dedicate this research project to our research project supervisor, Ms Fong Chee Yang for her professional advices, guidance, support and time spent on us.

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LIST OF ABBREVATIONS

AFTA	ASEAN Free Trade Area
DNA	Deoxyribonucleic Acid
DOSM	Department of Statistic Malaysia
GDP	Gross Domestic Product
MAA	Malaysian Automotive Association
MASTIC	Malaysian Science and Technology Information Centre
MATRADE	Malaysian External Trade Development Corporation
MIDA	Malaysian Investment Development Authority
MOSTI	Ministry of Science Technology & Innovation
MPC	Malaysia Productivity Corporation
MRA	Multiple Regression Analyses
RCA	Revealed Comparative Advantage
SAS	Statistical Analysis System
SME	Small and Medium Enterprise
UTAR	Universiti Tunku Abdul Rahman

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LIST OF APPENDICES

PREFACE

It is compulsory to carry out research project in order to accomplish our study which is Bachelor Degree of Business Administration (Hons). The topic of the research project is "*The Factors Affecting Product Innovation of Manufacturing Industry in Malaysia*". This topic is conducted because manufacturing industry is very crucial for economic growth and development, international trading sectors and the gross national product.

Nowadays, manufacturing firms in Malaysia had been reported that they are facing low level of innovation towards their product produced. Industry in Malaysia which are facing a decline of innovative products which is cause by lacking the required skills, expertise, and ability by employees especially working in manufacturing sectors. Without the difference in doing things more creatively, firms cannot provide the beneficial changes to the organisational structure, improving performance of a company and most important they are unable to contribute their ideas generated. The research will provides some insight and better understanding of some of the antecedents such as the culture, resources and the ability on product innovation of the manufacturing industry in Malaysia.

This research is also concerned about the level of product innovativeness among working employees. Organisational support also will affect the employees towards their contribution and to the extent of taking care of their well-being. In short, this research project will give some help to improve the level of creativity among employees through the study of organisational capability, knowledge management, perceived organisational support, and organisational culture on product innovation.

ABSTRACT

It is known that manufacturing industry is important for a countries development. The purpose of this research is to examine the effects of organisational capability, knowledge management, perceived organisational support, and organisational culture towards product innovation within manufacturing firms in Malaysia. The focus on our study has included SMEs, start-up firms in which primarily the entrepreneurial firms has the size of more than 100 employees, public listed companies, and also private manufacturing companies. There are total 400 sets of questionnaire had been distributed to manufacturing and total number of 320 sets had been collected. Based on the findings, all independent variables (organisational capability, knowledge management, perceived organisational support, and organisational culture) have positive effect with dependent variable (product innovation). Based on MRA results, there is a positive relationship between organisational factors and product innovation. For future study, there are more talented professionals such as engineers, scientists, and inventors are recommended. Furthermore, if future studies are to focus on manufacturing industry, they can emphasize on special training for employees by encouraging them to be creative and innovative towards product innovation.

CHAPTER 1: INTRODUCTION

1.0 Introduction

Our research purpose is to identify the organisational factors affecting product innovation of manufacturing industry in Malaysia. The research will mainly concentrate on whether factors such as organisational capability, perceived organisational support, knowledge management and organisational culture has direct effect on the product innovation in manufacturing firm today.

This chapter is the introductory chapter of this research which will provide an overview of the research background and follow by the problem statement where we find our research gap to formulate our research objectives, research questions, hypothesis and significance of the study. Research background presents the broad and narrow scope of the research which will be served as the direction to be carried in this study. Problem statement describes the foundation of the study, indicating and placing a boundary for the research without specifying the type of research that will be carried. Research objectives and questions provide perspective explicitly on the main purpose of the study and stimulate the interest of the reviewer. Hypothesis of the study is derived from summarization of literature review while significance of the study indicates the relevance, importance and the contribution of this research when it is done. Lastly, this chapter will end with a chapter layout and conclusion.

1.1 Research Background

Malaysia like most other economy in the world, has a newly industrialised market economy. The Electronic industry, Auto motive industry and Construction industry, or in general known as the Malaysia's industrial sector contributed for 36.8%, a third of the country's GDP in 2014 where the industrial sector also employ almost 36% of the labour force in year 2012. The E&E industry or the electrical & electronics industry dominate Malaysia's manufacturing sector, account for the country's export of 32.8% and 27.3% of employment (Malaysian Investment Authority [MIDA], 2015). The increase demand in the use of mobile device such as the tablets, smartphones; storage devices like cloud computing and data centres; optoelectronics which include fibre optics, photonics and LEDs and the embedded technology like LEDs, PCBs and integrated circuits to name a few have significantly furnish Malaysia's manufacturing industry, contributing somewhat 30.1% share of GDP in 2010 and 27.8% share of employment in 2010 (MIDA, 2015). Thus, create employment opportunities and application of new technologies which sound promising toward achieving Malaysia's Vision 2020, to be an industrialized country.

Table 1.1.1: Performance of various countries in Global Innovation Index

Country / Economy	Income	2014		2013		2012		2011	
		Rank	Score (0-100)	Rank	Score (0-100)	Rank	Score (0-100)	Rank	Score (0-10)
Switzerland	HI	1	64.78	1	66.59	1	68.20	1	63.82
Sweden	HI	3	62.29	2	61.36	2	64.80	2	62.12
Finland	HI	4	60.67	6	59.51	4	61.80	5	57.50
USA	HI	6	60.09	5	60.31	10	57.70	7	56.57
Singapore	HI	7	59.24	8	59.41	3	63.50	3	59.64
Denmark	HI	8	57.52	9	58.34	7	59.90	6	56.96

Hong Kong (SAR)	HI	10	56.82	7	59.43	8	58.70	4	58.80
Spain	HI	27	49.27	26	49.41	29	47.20	32	43.81
Slovenia	HI	28	47.23	30	47.32	26	49.90	30	45.07
China	UM	29	46.57	35	44.66	34	45.40	29	46.43
Cyprus	HI	30	45.82	27	49.32	28	47.90	28	46.45
Portugal	HI	32	45.63	34	45.10	35	45.30	33	42.40
Malaysia	**UM**	**33**	**45.60**	**32**	**46.92**	**32**	**45.90**	**31**	**44.05**

Source: National Survey of Innovation. *Malaysian Science and Technology Innovation [MASTIC] (2014)*.

The Table 1.1.1 shows the performance of various countries in the Global Innovation Index for 2011-2014. Malaysia is classified as an upper middle income country (Upper middle income) by the value of GDP per capita. In the year 2014, Malaysia ranked number 33, one rank down in the year 2013.

Furthermore, Malaysia, the 22nd largest automotive manufacturer produced 545, 122 passenger cars and 51, 296 commercial vehicles, a total of 596, 418 vehicles in 2014 (Malaysia Automotive Association [MAA], 2015). This development indicates that Malaysia is advancing rapidly and apparently develop into more technological advanced and thus, require higher skilled work force to possibly achieving the needs and demand of the industry. Nevertheless, Malaysia's First Industrial Master Plan reported that the manufacturing sector hired 12,000 engineers and technician, which account for 2.4% of the labour force (Rasul and Puvanasvaran, 2009) and also about 6- 8% lower compared to developing country according to Lim (Lim, 1994). He expressed that a big concern on the programmed to industrialize the country is the short supply of engineers and technicians which will consequently lead to low penetration of technological product ability.

Higher level of education boost the chances that an individual will be hired in both industrial and developing countries. To well- manage the different condition of the economy and also to facilitate its development through the application of state-of-the-art technology, it is necessary for an individual to seek after the knowledge and ability needed to increase one employability skills. According to Hussain (2005) research show the reason why technical graduates cannot meet the needs and requirements of employer is due to the missing in practical training despite the graduates are well- prepared with the theory of technical aspects and basic knowledge that was designed by the technical curriculum. Although 20, 821 technical graduates in 2001, 41, 282 technical graduates in 2003 then the number kept escalating up until 2005 with an increase of 58.2%, totalling to 65, 304 technical graduates and yet from this total, 62.3% are still unemployed.

The lack of essential skills and knowledge among graduates poses a tremendous impact for product innovation in manufacturing industry. Productivity capacity, new products and technologies breakthrough are deemed to be crucial determinants of a firm's competitive advantage, productivity growth and ultimately their survival. In spite of its momentous role, the factors that associate to the production of innovation is still poorly understood among the Malaysian industries.

1.2 Problem Statement

Product innovation is defined as the creation and consecutive introduction of a good or service which is new or improvement on previous goods or services of its type (Hoang, 2010). It's the principal cause of creation of value in companies and a critical facilitator of achieving competitive advantage. Innovation is essentially an immensely blend of diverse activity that, when it works as a whole, produces a stimulating pressure between, time to market, performance, quality, product value and competing objectives of development cost (Policy Studies Institute, 2010). Every part of the company is vital for product development. Functions like finance,

purchasing, customer support, operations, sales and strategic planning are utterly as crucial to successful innovation as engineering and R&D.

Table 1.2.1: Innovative and Non-Innovative Companies Based on Business Sector

Sector	Innovative	%	Non-Innovative	%
Manufacturing	**445**	**38**	**292**	**58**
Services	733	62	212	42
Total	1178	100	504	100

Source: National Survey of Innovation 2012. *Ministry of Science Technology & Innovation [MOSTI] (2012)..*

Table 1.2.1 shows the innovation activities respond rate based on the 14 Malaysian states and the total number of Innovative firms with a total of 1178 and a 504 of non-innovative companies done by MOSTI (2012).

Malaysia is currently entering upon a new stage of development towards achieving its vision of becoming a developed country by 2020. Initiatives to heighten national resilience and competitiveness will be prioritized despite of the dynamic domestic and global economic landscape. One primary core of the country's Development Plan is to shift the economy up the value chain, and as a result, lead to the need to produce further innovation driven enterprises. Malaysia External Trade Development Corporation or better known as MATRADE is the country trade advertising agency of Malaysia. It aimed at promoting Malaysia's export that had enabled many local companies to create new frontiers in today's multinational market (MATRADE, 2011). One of MATRADE objective is to advertise Malaysia's innovations internationally.

Even though many efforts have been made to upbringing nation ability to create product innovation, the fall in the Revealed Comparative Advantage (RCA) index

in some product units in the overall electronic and electrical production such as office machines and radio broadcast receiver recommend that the growing rivalry as a result of regionalization like AFTA and globalization is destroying Malaysia's Strong position (Amir, 2000). Research done by Mahani and Wai (2008) result showed that the overall RCA index for machinery except electrical was little above 1 and exhibit a small symptom of declining pattern. Another study conducted by Noor, Tan, Mohd Adi and Kamaruddin (2013) stated that there are two major problems associated with product innovations among SMEs manufacturing industry in Malaysia.

Figure 1.2.2: Innovative and Non-Innovative Companies Based on Business Sectors
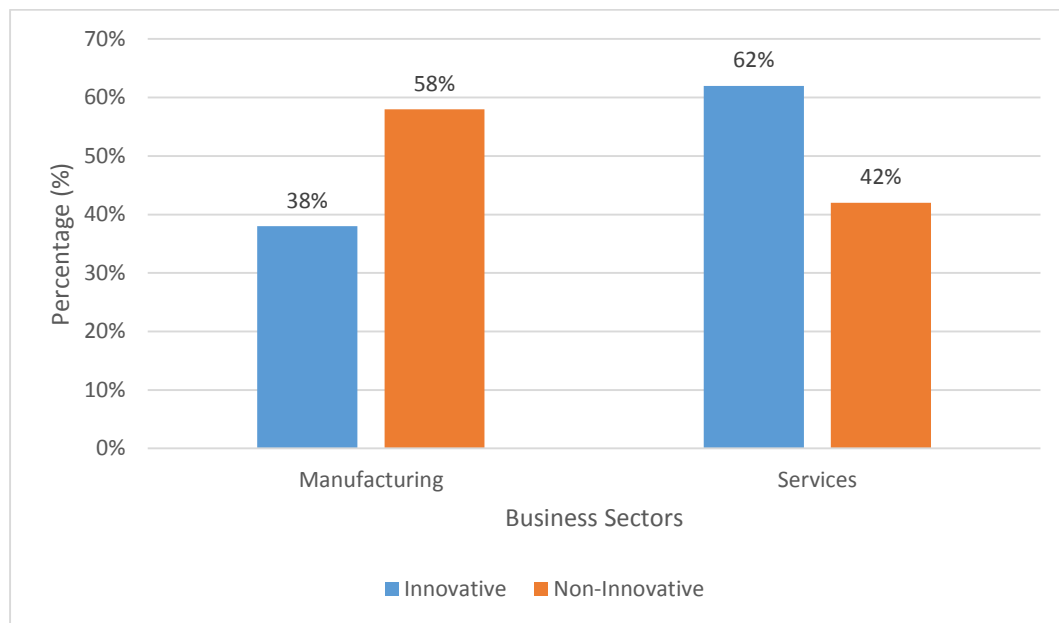
Source: MOSTI, 2012. *National Survey of Innovation 2012*.

Figure 1.2.2 shows the innovative and non-innovative respondents based on company business sectors. This result has shown the total number of respond rate in percentage according to the innovative and non-innovative companies of both manufacturing and services in 14 states of Malaysia. Such as Kelantan, Perak, Perlis,

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Melaka, Kedah, Negeri Sembilan, Terengganu, Pulau Pinang, Pahang, Sabah, Johor, Sarawak, Kuala Lumpur, and Selangor.

The first problem is internal resistance to innovate and organizational rigidities or traditionalism. This could be due to the perception of the workforce itself that hinder the cultivation of innovativeness. The second problem lies within the world economy itself. Despite globalization and liberalization have shaped business resources to be more transferable and mobile beyond borders, it sabotages local SMEs as they have to rival against cheaper, more innovative and creative incoming foreign products or services, and also fight for scarce capital and resources. The health of a company's innovative organization can be completely associated to a company's strength to develop growth and value. Thus, the main purpose for this study is to investigate the organisational factors affecting product innovation in Malaysia's manufacturing firm.

In any circumstances, cross-functional development like innovation demand thorough exchange of knowledge, an adequate organizational design that are adaptive, self- correcting and robust and most importantly, a company's ability to innovate faster. Thus, organizational capability, perceived organisational support, knowledge management and organizational culture will be the chosen independent variables in this research and the dependent variable is the production innovation. In addition to that, research will be conducted to test the relationship between product innovation and all 4 independent variables mentioned above.

1.3 Research Objectives

1.3.1 General Objectives

To examine the factors that affect product innovation in Malaysian manufacturing industry.

1.3.2 Specific Objectives

1. To measure the effect of organisational capability towards product innovation in Malaysian manufacturing industry.

2. To measure the effect of knowledge management towards product innovation in Malaysian manufacturing industry.

3. To measure the effect of perceived organisational support towards product innovation in Malaysian manufacturing industry.

4. To measure the effect of organisational culture towards product innovation in Malaysian manufacturing industry.

1.4 Research Questions

1. What organizational factors that affect product innovation in Malaysian manufacturing industry?

2. Does organisational capability affect product innovation in Malaysian manufacturing industry?

3. Does knowledge management affect product innovation in Malaysian manufacturing industry?

4. Does perceived organisational supports affect product innovation in Malaysian manufacturing industry?

5. Does organizational cultures affect product innovation in Malaysian manufacturing industry?

1.5 Hypotheses of the Study

Hypothesis 1

H1: There is a positive effect between organizational factors and product innovation in Malaysian manufacturing industry.

Hypothesis 2

H2: There is a positive effect between organisational capabilities and product innovation in Malaysian manufacturing industry.

Hypothesis 3

H3: There is a positive effect between perceived organisational supports and product innovation in Malaysian manufacturing industry.

Hypothesis 4

H4: There is a positive effect between knowledge management and product innovation in Malaysian manufacturing industry.

Hypothesis 5

H5: There is a positive effect between organisational culture and product innovation in Malaysian manufacturing industry.

1.6 Significant of the Study

The reason for this research is to find out the relationship between organisational factors toward product innovation in Malaysian manufacturing industry. Manufacturing industry has always play a vital role contributing toward Malaysia's overall GDP, and with the help of our research, it will serves and provide guidance, testaments and information to relevant researcher and labourer in the nation.

The research outcome will foster and shape the culture of their company that drive and cultivate internal innovation, build employee skill sets needed in this ever demanding market. Furthermore, organisation may be well informed, mindful and receptive toward factors that will encourage as well as motivate their employee to be innovative in product development. Thus, promoting intentionally let go "the way things are" and introduce "the way they could be". Surfing the "edge of chaos" require the need to embrace "the unknown", facing multiple breakdown and bumps on the road that will eventually allow order and breakthrough to emerge. The research conducted will give enough support and structure that will help employees in better handling uncertainties and tap into innovativeness and creativeness.

To be a truly innovative enterprise, the DNA of innovativeness must be embedded in the underlying culture of an organization. This research will help organization in better design culture program that will allow innovation to be accepted and empower individuals with everything they needed to pursue an idea they are desirous and passionate about. Employee's attitude that will instil innovation can be recognized, redefined, promoted and rewarded accordingly.

1.7 Chapter Layout

A total of five chapters will be included in this research, which are introduction, literature review, research methodology, research results, discussion and conclusion.

Chapter 1: Introduction

 First, chapter 1 is the preliminary chapter which will give a review on the product innovation in the manufacturing firm context. The introductory chapter covers the research background, problem statement, research objectives, research questions and hypothesis of the study and the significance of the research.

Chapter 2: Literature Review

Second, chapter 2 provide the summary of literature review conducted on the sources of secondary data that had been collected. The summary of the literature review conducted focus primarily on the factors affect product innovation in Malaysian manufacturing industry which consist of organisational capabilities, perceived organisational supports, knowledge management and organisational culture. This section address the pertain characteristics and gap among each selected variable. A proposed theoretical or conceptual framework is designed based on prior research objectives and research questions stated. While the hypothesis developed are formulated from the findings conducted, theories to investigate on whether the theory developed is valid or not are still questionable.

Chapter 3: Research Methodology

As for chapter 3, research methodology concentrates on the process used to collect information and data, the chosen measurement for each of the variable and its reliability that will be carried out in steps which include research design, data collection technique, sampling design, operational definitions of constructs, measurement scales and methods of data analysis.

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Chapter 4: Research Results

Chapter 4 of the research will provide the results that will overcome the blurring boundaries to the argument of prior chapters. The subchapters comprise of descriptive analysis, scale measurement and inferential analysis.

Chapter 5: Discussion and Conclusion

Last but not least, chapter 5 provides summary of the analysed statistics, discussion of major findings, implication and limitation of this research, suggestions for future research and the comprehensive result of the entire research effort that aligned with the research objectives set.

1.8 Conclusion

Overall, chapter 1 give a peek on the current Malaysian manufacturing industry and how product innovation affect the industry and its' role in it. The problem statement provide a rough idea on the problem encountered in the manufacturing industry and what affect product innovation that drive the technology used in organisation. It discuss the linkage between the factors that will influence the product innovation and that is where research objectives are derived from.

One broad objective outline the research to be undertaken and then another four specific objectives developed to give explicit view on the proposed general objective. Then we have the relevant, clear and researchable research questions that will provide guidance to the arguments and inquiries come across in this study.

Nonetheless, the stated hypothesis are developed after all the relevant literature is reviewed and are originated from the proposed theoretical or conceptual framework along with the journal article that have been reviewed. The significance of the study layout the importance on why this research is conducted and in what way the study will help organisation in the manufacturing firm to be innovative which will give

competitive advantage in future to come. This chapter serve as the basis for further research and review on relevant journal articles will be conducted and summarized in the following chapter.

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CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter begins with the reviews of dependent variable which is the product innovation, and follow by the independent variables such as organisational capabilities, perceived organisational support, knowledge management, and organisational culture. The influence of the independent variables and dependent variable are explained based on relevant theories and models from the literature. Follow by the theoretical framework and development of hypothesis. Finally, which consist of last part of chapter 2 is the summary.

2.1 Review of Literature

2.1.1 Dependent Variable: Product Innovation

Definition and Theories

Innovation is defined as "the reflection of novel outputs of a new good, a new method of production, a new market, a new source of supply, or a new organisational structure" (Schumpeter, 1934). Meanwhile, Drucker (1987) stated the innovation is a procedure of equipping in new, developed competencies or improving the effectiveness.

Type of innovation

Schumpeter (1934) suggested the innovation can be either product or process and related to organization or marketing. However, Abernathy & Utterback (1978) added radical and incremental as type of innovation. Technical and administrative innovation added by Daft (1978).

Accessing innovation in management

Hermann, Gassmann, & Eisert (2007) have suggested that the product innovation could be assessed according to micro (company) and macro level (industry). Successful or new product innovation could bring the substantial growth to company itself and be more distinctive in the market. This will also decide the company long term success or failure in the competitive market.

Furthermore, Burgelman (1986) & Chesbrough (2000) suggested the company should think ahead their current situation in order to commercialize the innovation in the market. However, Simon & Houghton (1999) argued that the new product with high level of innovation will often fail and lack of managerial support due to the resistance toward major change in the organisation.

Consequences

From the past research, we found that although product innovation receives considerable research and its information could be easily get. However, there is a little effort in further elaborating the determinant that impact on product innovation. Thus, we would like to further address it in this research paper by selecting product innovation as our dependent variable.

Organisational Factors:

2.1.2 1ˢᵗ Independent Variable: Organisational Capability

Definitions and theories

According to Day (1994), capabilities are "complex bundles of skill and accumulated knowledge which exercised through organizational processes for an organisation to coordinate their activities and utilize their assets.

Dimension of organizational capabilities

Akgün, Keskin, Byrne, & Aren (2007) suggested learning capability of employee as part of organizational capability that could affect the innovativeness of the employee in developing a product. According to Hermann et al. (2007), organisation capability could be divided in two parts which is transformation of competencies and transformation of market.

However, Chang, Chang, Chi, Chen & Deng (2012) argued that the dimension of organizational capabilities should include experimentation capability, integration capability, autonomy capability and openness capability. Both suggested the capability is the core competencies in company that allow them to gather innovative idea from employee as a key success factor.

Contribution of organizational capabilities

Hamel & Prahalad (1990) stated that the core competencies in company are the main factor contributed to capability to produce new or innovative product to the market. However, Srivastava and Gnyawali (2011) reinforce that the openness firm should able to found more sources to contribute in innovation as more information and knowledge flow in the company. According to Kanter, North, Richardson, Inglos & Zolner (1991), the company should provide better integration capability and autonomy capability to the managers in order to ensure the smooth transition of innovative idea from research and development department to other business unit.

2.1.3 2nd Independent Variable: Knowledge Management

Definition and Theories

Knowledge management has been specify in the series of tactics and operations used in an organization to distribute, create, identify, create, distribute, and enable adoption of perceptions and practices (Vatuiu, 2010). Knowledge is very important for an organization to conduct daily operations and implement strategies to solve the problems and compete with the competitors. According to Nazem (2011), knowledge has been identified as one of the most important resources that enable an organization to gain competitive advantage. Camila and Luiz (2013) stated that human capital and tacit knowledge are the main competitive advantage to an organization. Tacit knowledge is a knowledge that the person knows he has but he cannot describe in words other than its own performance. In another way, tacit knowledge is a subjective insight that difficult to be share and explain while the things is we know how to do it (Polanyi, 2002).

In the early 1970s, the word knowledge management has first attempt by the researchers. It is a practice that improves the effectiveness of the organization and enhances employee's willingness to share the knowledge within the organization for solving problems (Nazem, 2011). Throughout knowledge management, the organization able attain strategic objectives in correlation of performance and enhancing the procedures and methods by connected with the company's capability to use all the existing sources and types of knowledge in the organization to progress precise skills that used to transform into new products and processes (Nonaka & Takeuchi, 1997).

Factors of Knowledge Management

According to Kamran and Sabir (2012), knowledge management is consistent with intellectual capital of the organization which eventually provide guidance towards the competitive advancement thru innovate and develop new products to enhance the organization's profits. Organizational

effectiveness could contribute by knowledgeable employees. In order to increase the organization's profit and effectiveness, the organization have to adapt to the environment and familiar with the latest technology and aware to the current trend. Knowledge management provides the critical issues of organizational adaption, survival and competence to the rapid change in the environment (Malhotra, 1964). It is important to adopting and implementing different types of innovations and enhances an organization's ability to efficiently perform its goals as well as increasing organization learning (Nonaka & Takeuchi, 1997).

Furthermore, strong intervention of modern technology creates opportunity for the organizations to enhance the organization's competitive positions by focus on the necessities of the customers through the market through acquire the knowledge and fully utilizing it to the job task and responsibilities. Firms can accomplish greater innovative performance via sharing technological knowledge due to knowledge allocation strategies can assist a firm to outline the established environment in favor of its specific technological and scientific design (Jennifer, 2003). Knowledge management is a business process which relates to creating new knowledge and use the knowledge within the organization when it is necessary (Kor & Maden, 2013). Managing the creation of new knowledge enable the company responds switfly to the customers, yield of novel market, rapidly manufacture and produce new products, and achieve dominance in (Nonaka & Takeuchi, 1997).

Integrating Knowledge Management

In addition, researcher concludes that knowledge management provide an efficient way to the organization to organize, govern over the production, sharing and allocating knowledge in a defined direction and exercising the knowledge within the organization. Knowledge is a vital tool to improve performance and efficiency. Constructing innovation and development are the major module to sustain the effectiveness of organization. Knowledge

management is essential in cultivating product innovation and organizational effectiveness and also delivers direction for supervisors and manager in the decision making process.

2.1.4 3rd Independent Variable: Perceived Organisational Support

Definition and Theories

Eisenberger (1986) and associates demarcated perceived organisational support is viewed as the workers' judgement concerning which their organisation cares about their worth contribution and their welfare in an organisation. Perceived organisational support is beheld as a vital part of the social interchange relationship between their employee and their manager (Eisenberger, 1986). This specifies the certainty of employees towards what the organisation will be done. Eisenberger, Huntington, Hutchinson and Sowa (1986) detailed that perceived organisational support declares that employees establish job dedication based on the trust that the organisation concern about them, when employees have sufficient job dedication, they are able to be more proactive in their work as for that they are capable to bring out new source of creative ideas during critical thinking is held throughout meetings. Separately from that, Rhoades and Eisenberger (2002) illustrate perceived organisational support as a method that the organisation will ensure that aid will be freely available when support is essential to highlight job excellently or to allocate with edgy condition.

Moreover, perceived supervisory support (PSS) is crucial and has important influence toward perceived organisational support (POS) among employees and staff in a manufacturing industry. As claimed by Du Plessis (2010) perceived supervisory support (PSS) is the employees cultivate universal perceptions towards their supervisors and assess their qualities and accomplishments. (Eisenbarger, Stinglhamber, Vandenberghe, Sucharski &

Rhoades, 2002). On the other hand, supervisor is an important role who has responsibility in organisations to act as representatives. Supervisors have rights in entering and provide sufficient support or guidance to their employees in order to complete a certain task (Eisenberger et al., 2002). Hence, supervisor is a vital role in an organisation due to employees and staff perceived their supervisors as a support to them (Levinson, 1965). A significant component is supervisor has the responsibility on handling employee's emotions in a favorable manner and sustain the organisational commitment (Dawley, Andrews & Bucklew, 2007). Hutchison (1997) specified that supportive treatment and guidance by their immediate supervisors in the workforce was absolutely associated with affective commitment. Apart of that, top management teams serve a critical role in that search process. Top management commitment is the most critically an important factor in successful new product development (NPD) (Rodriguez, 2008).

Factors of Perceived Organisational Support

Some researcher concentrate on management control structures and represents shown that how management control and their participation to construct and create knowledge, also lessen the uncertainty in NPD (Richtner & Ahlstrom, 2010). Moreover, the role of top management team is to motivate the innovation is not direct (Richtner & Ahlstrom, 2010). Via the management team participation and involvement in NPD process, followers of cross-functional team develop to be more intense and passionate concerning on their responsibilities in NPD process in a synchronized routine and the output and productivity can favourably enhanced.

Indeed, a team that more effectively searches and acquires new knowledge and information (Katila, Chen, & Piezunka). Levinson (1965) states that another organisational support theories is the actions of the supervisors act as a point of references of the organisations commitment. Besides that,

administrators are commonly the direct or the closest secretarial relation to the employee and able to be in touch with the organisation's goals ahead to their subordinates (Andrews & Henry, 1963).

In addition, organisational support theory proposes that employees form global impressions of the degree to which their organisation provides adequate resources or information and values them as individuals, including the likelihood that the organisation will reward their performance and help them during sophisticated moments such as organisational change (Rhoades and Eisenberger 2002), moreover, there is also greater the possibility of finding new information and knowledge that leads to new product introductions (Knudsen & Levinthal, 2007). Thus the identification of new information and data act as a key input to new product development (Maggitti, 2013). The exploration that directs responsiveness toward new information and knowledge or allows the detection of novel methods to integrate knowledge leads to develop new behaviors, interactions, strategies, and processes that are useful in new product development. The development of a positive impression regarding the support employees receive from their organisation will lead to positive outcomes for both the employees and the organization. When employees perceive strong organisational support, their socio-emotional needs are met and they are likely to report more positive job attitudes, including job satisfaction, promoting employees motivation to work harder to achieve organisational goals and able to innovate in different perspectives such as performance and behavioral conditions.

Consequences of Perceived Organisational Support

Based on the norm of reciprocity Blau (1964), employees will also attempt to repay their organisation for the support they perceive by caring about the organisation and performing their jobs well. However, if employees do not feel supported by their organisation they may withhold effort (resulting in lower levels of performance) and report more destructive job attitudes. As Rhoades and Eisenberger (2002) discovered a strong positive relationship

between perceived organizational support (POS) and job satisfaction in the workplace and a positive relation between job performances too.

From the overall research that has conducted, we found that product innovation receives a substantial research and its evidence could be easily get. However, there is a limitation in term of further elaborating the determinant that influence on product innovation. Thus, we would like to further address it in this research paper by selecting product innovation as our dependent variable.

2.1.5 4th Independent Variable: Organisational Culture

Definitions and Theories

Organisational culture is defined as a series of psychological norms such as values and behavioral norms, beliefs, and assumptions which had been developed and adopted by the members of an organisation through their mutual experience (Janicijevic, 1997). However many different authors has different definitions and meaning towards an organizational culture. In Gonzalez (1987) mentioned that organizational culture is a cluster of meanings and symbols which are used for the organizational in creating ideas, interpretation of experience, decision making and undertaking of certain actions. In another researcher has also found out that organizational culture does not necessary developed through the mutual experience and this author attempt to surpass many definitions and concepts of an organisational culture. Schien (1990) model has segregated into three different levels. The top level which consist of anecdotes, rituals, stories, heroes, etc. Next the middle level consist of the organisational values, and the level of profound assumptions, which basically caught fewer attention outside of the firm. Lastly, the bottom level which is based on the employee's conviction to motivate others of an organisation to 'think, feel, and act'.

Factors of Organisational Culture

In a highly developed country, product innovation will increase an organizational ability to compete in this competitive market. The significance of this research is to identify the effects of organizational culture towards innovativeness of a firm. The market is ever changing dynamically, thus many products changes accordingly with the adaptation of technology (Skerlavaj, Song, & Lee, 2010). Organisational culture plays a very important part in Malaysia and subsequently this has an impact on the workforce that drives the innovativeness of the firm (Samad, 2012). Organisation which develops a products that satisfy the customer needs will enables them to buy more and eventually turns out to be loyal to that particular brand of product. Likewise, when a product is undesirable or unfavorable by the end-users this will cause the sales to decrease and hence the profit for the company will also be drastically affected (Utterback & Suarez, 1993).

Moreover, in order for an organisation to be innovative requires an extensive amount of creative ideas to allow generation of new developments (Ng, Singh, & Jayasingam, 2012). Hence, the important criteria on innovation exist in a culture which includes certain set of behaviors, norms, and the values from each individual contributing employees. Consequently, there is a vast difference from having creative ideas and effective implementation in the organisation. Dennison (1996), mentioned that the higher the involvement and adaptive towards culture will help cultivate the creativity ideas that are being generated for future implementation. In another research of has revealed that organisation must have the full support such as adequate resources and opportunities to enhance innovation. Some of the elements which includes risk tolerance, communication, and transfer of knowledge, trust and strong teamwork must have great significance to support innovation (Luvić, Džamić, Knežević, Alčković, & Bošković, 2014). Ideally it is important for every individual to gain support for their needs in an organisation. Basically, organisational culture not only focuses on the

primary core values requires for better performance and satisfaction. However, culture can become the motivator to influence employees to perform better in their job task, thus when their needs are taken care of, culture will have a positive effect on the work contributed by employees.

Consequences of Organisational Culture

In this research we are going find out whether there is a significant impact on the dependent variable. The limitation of this linkage is to find whether organisational culture is viewed as participation or at the business environment level. During the 80s Dennison (1984) research has study whether the pertaining single element of an organisational culture which have impact on their organisational performance. Our focus is to study and analyses the cultural aspect within an organisation which will influence the creativity among employees and subsequently this will lead to the contribution of firm's innovation. An organisation can be rigid, autonomous structure, individualistic culture stance, could the strong culture persist in the organisation. Therefore we are finding out whether strong culture have an impact on the product innovation specifically in the area of our study which is manufacturing industries.

2.2 Review of Relevant Theoretical Models

2.2.1 Model 1: Organisational Capability and Product Innovation

Figure 2.2.1.1: Conceptual Model of Hermann, Gassmann, and Eisert (2007)
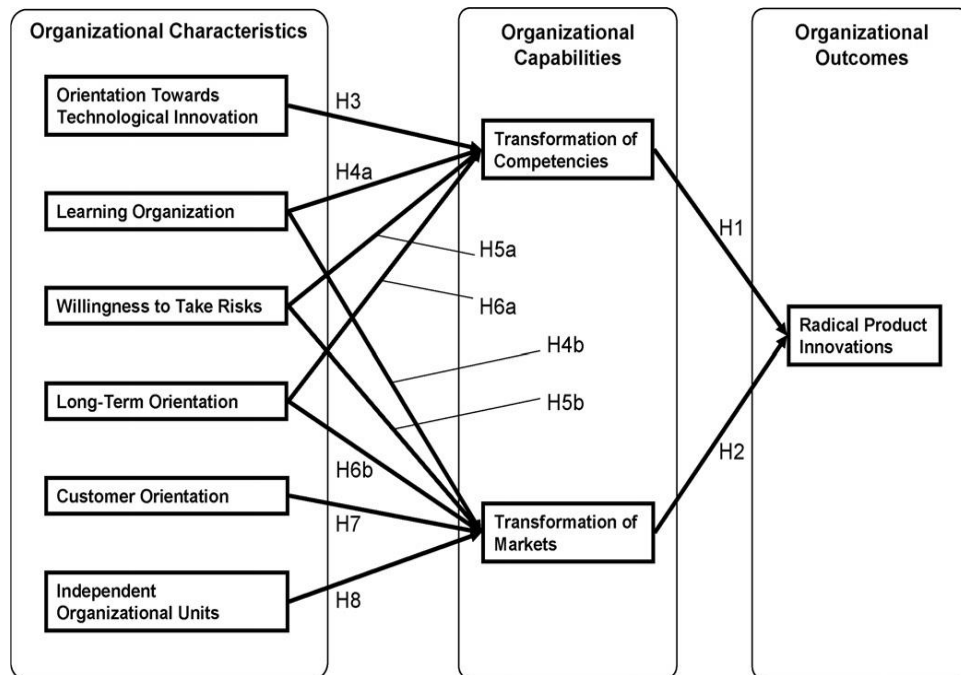
Source: Herrmann, Gassmann, & Eisert, (2007). An empirical study of the antecedents for radical product innovations and capabilities for transformation. *Journal of Engineering and Technology Management*, *24*(1), 92-120.

The above model developed by Herrmann et al. (2007) has included organisational capability as independent variable and radical product innovation as dependent variable. The organisational characteristic column contained a series of antecedents which can affect organisational capabilities itself. The model suggested the transformation of competencies and transformation of market as part of organisational capabilities in affecting the radical product innovation.

However, Chang et al. (2012) argued that the organisational capabilities should include openness capability, integration capability, autonomy capabilitiy and experimentation capability as independent variables in affecting the performance of radical innovation.

Other than organisational capability, Ferreira, Fernandes, Alves & Raposo (2015) suggested strategy, process, organisation, learning and networking as better independent variables in affecting innovation activities.

2.2.2 Model 2: Knowledge Management and Product Innovation

Figure 2.2.2.1: Conceptual Model of: Kor, and Maden (2013)
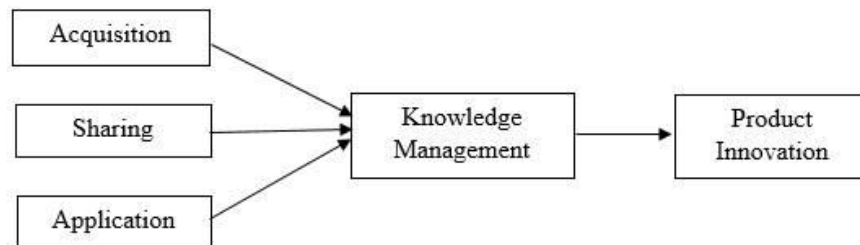
Source: Kor, B. and Maden, C.(2013) The Relationship between Knowledge Management and Innovation in Turkish Service and High-Tech Firms.

According to the study conducted by Kor and Maden (2013), the theoretical framework was formed. The variables of knowledge management are acquisition, sharing and application. However, the researches indicated that knowledge acquiring and knowledge sharing have interrelated relationship and will lead to product innovation. When an organization applied or acquired the knowledge, organizational learning will take place which effect on openness to product innovation. In addition, researchers indicated that

effective management of knowledge will increases the standard of knowledge within an organization that develops framework to support innovation in the product and increases the innovativeness of an organization.

2.2.3 Model 3: Perceived Organisational Support and Product Innovation

Figure 2.2.3.1: Conceptual Model by Cramm, JStrating, Bal, & Nieboer, (2013)
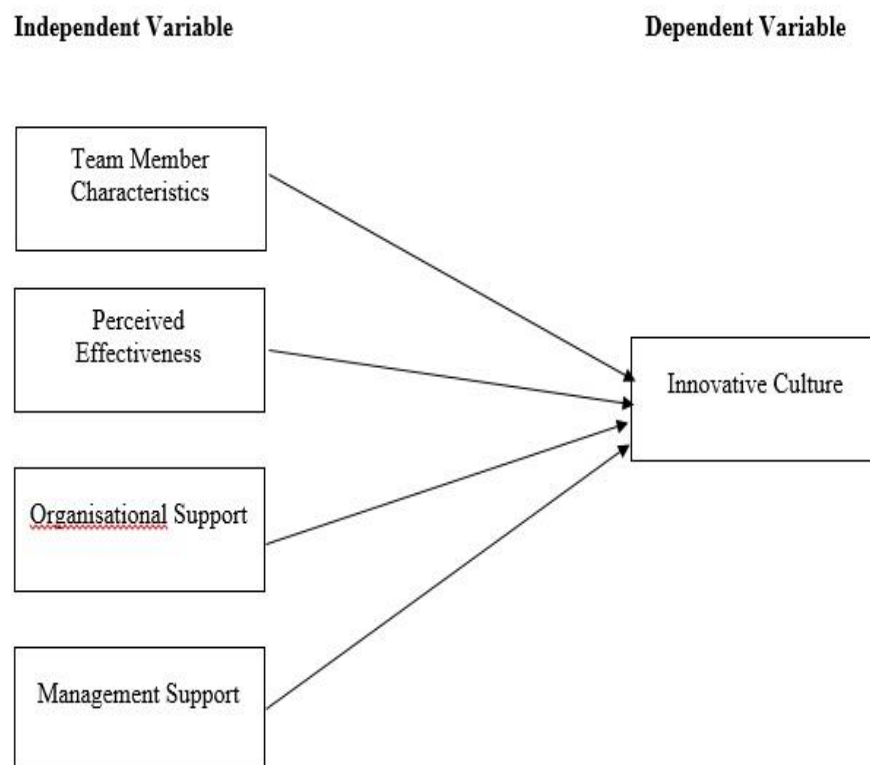
Source: Adapted from Cramm, J. M., Strating, M. M., Bal, R., & Nieboer, A. P. (2013). A large-scale longitudinal study indicating the importance of perceived effectiveness, organizational and management support for innovative culture. *Social Science & Medicine*, 83, 119-124.

Senge and Scharmer (2001) states that to improve the innovative culture by motivating and applying quality improvement and innovation approaches (Strating, Broer & Bal, 2011). Furthermore, management support and perceived organizational is associated to improve the innovativeness of the organisation's culture (Kaplan, Brady, Dritz, Hooper, Linam, Froehle & Margoli, 2010). With a sufficient and relevance prove from Amanile, Schatzel and Moneta (2004) propose that by acquiring support from the organisation such as training, organisational learning, and resources able to critically impact the staff and employees' freedom of creativeness and capable to encourage essential motivation, act as a role which are favorable to an innovativeness culture of an organisation.

On the other hands, support comprises of precision and accuracy of goals and developing an environment that able to endorse the most innovations such as letting teams to attempt novel approaches, promoting innovative solution to problematic situation and providing the opportunities and time to create new ideas (Amabile, 2004). Apart from that, management support and perceived organisational, staff and employees' recognition of new working approaches as being effective may able to ease the benefits of an innovative culture. Besides, Shortell, Marstellar and Lin (2004) seeks on the better the perceived effectiveness, the better to made changes and enhancement of quality, which specifies an superior innovative culture.

2.2.4 Model 4: Organisational Culture and Product Innovation

Figure 2.2.4.1: Conceptual Model of: Ng et al. (2012)
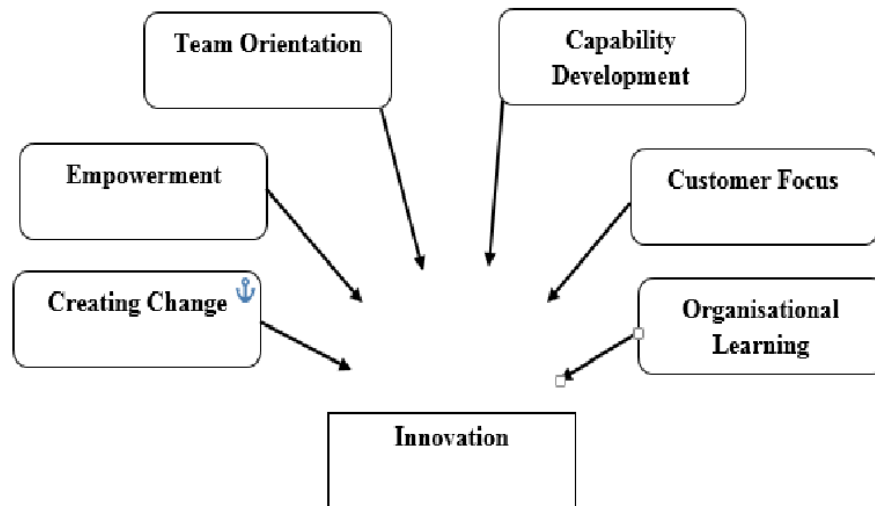
Source: Ng et al. (2012). Organisational Culture and Innovation among Malaysian Employees. *The Journal of Human Resource and Adult Learning*, 8(2), 150.

Figure 2.2.4.1 depicts the conceptual model of this study which consists of six dimensions that are proposed as predictors towards innovation. Creating change, customer focus, capability development, team orientation, empowerment, and organisational learning.

Ng et al. (2012) has develop their conceptual framework which measure the above six dimensions. Their setup which is based on the culture variables to depict the effects on the innovative variable. In other words by setting related question answered to these six cultural dimensions to measure the effect by given questionnaires to respondents will generate the desired results which will be significant to their research. Moreover high tech companies utilises much effort on product innovation. Hence by finding the true impact of an organisational culture can define its findings over product innovation. Therefore by successful implementation of creative ideas can be

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effective towards the performance of the company and subsequently generated new ideas are being used into developing new innovative products.

2.3 Proposed Theoretical Framework

Figure 2.3.1: Proposed Theoretical Framework
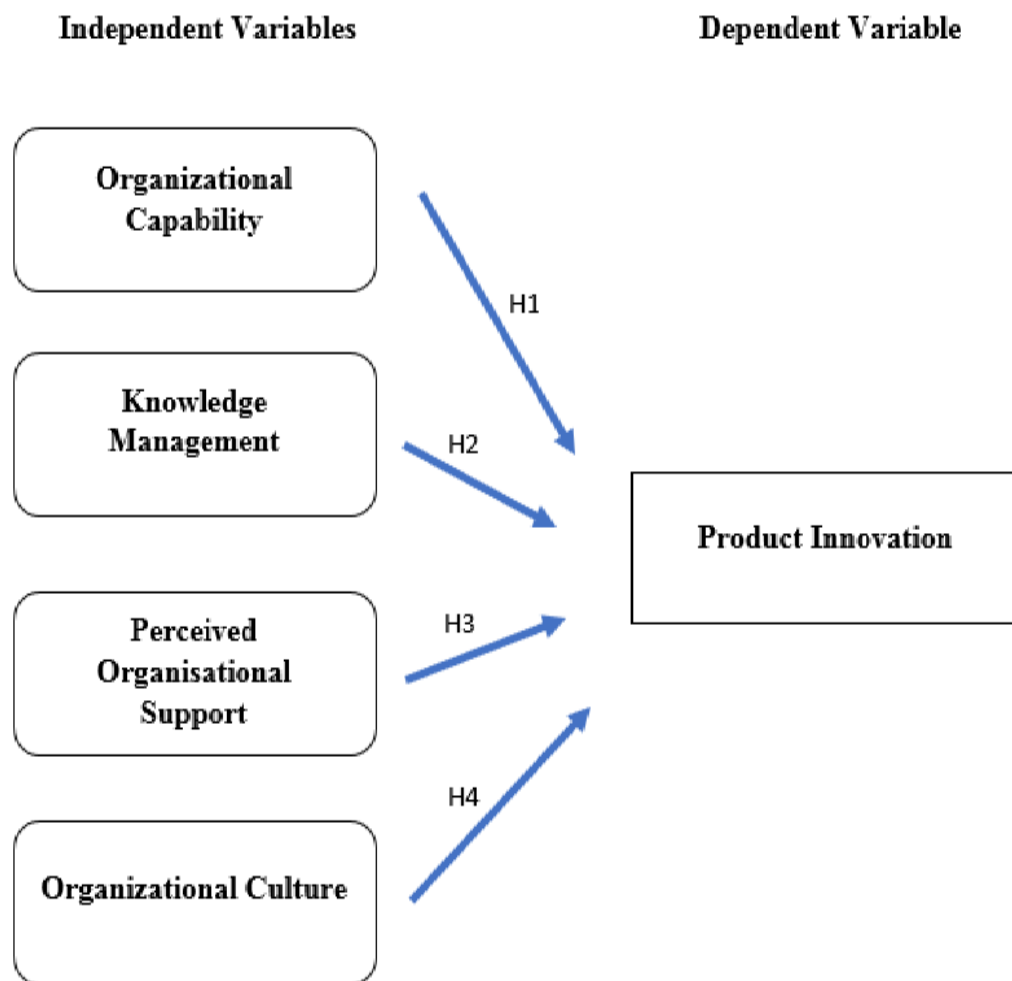
Source: Figure 2.3.1 developed based on the research objectives and research questions.

The model above illustrates the proposed theoretical framework that serves as the basis for this research. It focuses on the positive effects among the four independent variables which consist of organizational capability, knowledge management, management support, and organizational culture, towards dependent variable, product innovation.

The proposed theoretical framework is a diagram that describes how the concepts are related to each other (Sekaran & Bougie, 2010). It is often used to structure the discussion of literature and provide a visualized of the theorized relationship (Sekaran & Bougie, 2010). In our research, the independent variables are organisational capability, knowledge management, perceived organisational support, and organisational culture while these four dimensions had been used to examine whether they bring a significant impact towards product innovation.

Based on the theoretical models mentioned earlier, we know that organisational capability, knowledge management, perceived organisational support, and organisational culture would definitely affect the product innovation. Therefore, we had constructed a theoretical framework for this research as shown above. The purpose of our research is to examine the positive effects of the 4 factors among innovative manufacturing firms in Malaysia. Our proposed framework model above has indicate the effect between organisational capability, knowledge management, perceived organisational support, and organisational culture (independent variables) and product innovation (dependent variable) will be conducted in this research. In recent years, Malaysia has been facing a decline in innovative products due to the major loss of talents to foreign countries. Therefore, we wish to find out whether Malaysia is really lack of talented people in contributing towards product innovation. Similarly, there are very few research has been done on product innovation in Malaysia. Thus, this become a fresh topic and is an interesting topic for us to study deeply.

2.4 Hypothesis Development

2.4.1 Organisational Factors and Product Innovation

Hypothesis 1:

This hypothesis is being setup to test whether that there are any relationships between organisational factors which consists of organisational capabilities, knowledge management, perceived organisational support, and organisational culture towards the dependent variable which is the product innovation. When there are more than or equals to one independent variable which has relationship towards product innovation, the test for this hypothesis is formulated as below:

H1: There is a positive effect between organisational factors and product innovation.

2.4.2 Organisational Capability and Product Innovation

Hypothesis 2:

Based on Hermann et al. (2007) research, the hypothesis developed to proof the relationship between organisational capability and product innovation is statistically significant in the result.

Besides, Chang et al (2012) research included 112 effective respondents from manufacturing firm and obtained a positively correlated between four component (openness capability, integration capability, autonomy capability and experimentation capability) of organisational capability and innovation performance.

Therefore, we would like to formulate the testable hypothesis as followed for our research paper in conjunction with the past researcher to proof this relationship.

H2: There is positive effect between organisational capability and product innovation.

2.4.3 Knowledge Management and Product Innovation

Hypothesis 3:

Kamran and Sabir (2012) has conducted a study that indicates knowledge is a key tool to improve the organization performance and effectiveness. Knowledge intended to create new ideas to upgrade the product. Innovation is one of the output of knowledge management where the acquired knowledge with an adoption in inserted in products and services. The more information flow within the organization, the innovation of the product will be higher.

In a research conducted by Nonaka and Takeuchi (1997), they stated that if an organization able to create new knowledge, it will be a successful organization, because the knowledge will leads to innovation of the product and business. Company will reach an advanced innovative performance by sharing the knowledge compare with the low in knowledge sharing company. Besides, Kor and Maden (2013) had concluded knowledge management has significant impact on product innovation:

H3: There is a positive effect between knowledge management and product innovation.

2.4.4 Perceived Organisational Support and Product Innovation

Hypothesis 4:

According to Cameron and Quinn (1999) evaluates organisational support proclaim that collaboration involves of social interaction between employees, serve to comply a common objectives and goals ad collective gains. Organisational support is essential to secure the bonds between people and enhancing the communications among employees and organisational commitments. By creating a mutual trust between employees, which is vital for knowledge sharing purposes (Schepers and Van den Berg, 2007).

In a research that conducted by Kull, Narasimhan and Schroeder (2012) specifies that when an organisation standards and beliefs are shared, this will allow teamwork to be more effective and organisational competences to be well developed. As a result, organisation able to proceed further and acquire capability in developing new products, whenever there is an existence of collaborative cultures consequently a significant portion of organisational support and it is positively relevance to a comfortable working environment perceived (Doolen, 2003).

H4: There is positive effect on perceived organisational support and product innovation.

2.4.5 Organisational Culture and Product Innovation

<u>Hypothesis 5</u>

In Ng et al. (2012) studies has used a few dimensions to measure the organisational culture towards innovation of an organisation. Their cultural dimensions include empowerment, team orientation, capability development, creating change, customer focus, and organisational learning. Base on the six dimensions there are only 2 dimension used were not significant in Cronbach Alpha value which is empowerment, and capability development.

According to Lukić et al. (2014) studies has also tells us that strong culture can have positive influence towards employees. When their support is given enough towards team coordination and also their personal needs, they will envelop more motivation and positive energy which tend to lead to creativity. Moreover, Denison and Mishra (1995) their research focuses on integrating 4 culture traits into testing the organisational effectiveness or a company. There is a link between these traits towards creativity of an employee and which lead to product innovation. Some of these trait can be found in them such as adaptability, mission, involvement, and consistency. Thus, the hypothesis is proposed.

H5: There is positive effect on organisational culture and product innovation.

2.5 Conclusion

In conclusion, this chapter provides a comprehensive view of the independent variables and dependent variable through the review of existing literature, then along with the relevant theoretical model those have been explored assists us better understand the concept of product innovation and came out the conceptual framework. Besides, we develop the hypotheses based on the previous researchers on the relationship between each of determinant factors and dependent variable. Based on the findings of this chapter, we will further examine the 'relationships' of our variables in our study context through carrying out research methodology in the following chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

Literature reviewed in chapter 2 has found that there is positive effect between product innovation and the variables, organisational capability; perceived organisational support; knowledge management and organisational culture. Research methodology will be covered in the chapter 3 and this include research design, next which is the data collection methods, third is the sampling design, and lastly followed by the research instrument and constructs measurement, data processing and analysis of the data collected. All of these will be discussed in details in following chapter.

3.1 Research Design

Research design is defined as the logical and systematic approach in planning and directing a piece of research (Zikmund, Babin, & Carr, 2009). It is the overall plan of how the researcher intends to implement their projects in practice (Draper, 2004). It is also stated as the sequence of conditions for collection and analysis of data in a manner that intent to merge relevance to the research purpose in the procedure (Hafeezrm, 2011).

According to Yin (1989), research design measured out a logical problem and not a logistical problem. The sole purpose of design is a logical task attempted to confirm that the data collected allowed us to answer questions or to examine theories as explicit as possible. Draper (2004) argued that research method indicate as to how, when, where and which feasible way that the researchers hopes to collect and analyse the evidence. Research method can be categorized into to two ways; quantitative or qualitative ways. Quantitative research refers to organised practical

investigation of noticeable phenomenon using statistical, mathematical or computational approach (Given, Lisa, 2008). Qualitative research indicates an approach investigation used in various other academic disciplines including market research by the business sector and further framework by the non- profit sectors, even though traditionally is employed in social sciences (Denzin, Norman, Lincoln, Yvonna, 2005). Draper (2004) however defined that, qualitative research consist of semi structured or un- structured interviews, observance of candidates, historical analysis and content analysis.

Sekaran et al. (2010) argued that research design is concerned with practicable adjustment of obtaining data from external sources and in a survey, various type of approaches can be used for collection of data. For this research, distribution of questionnaires and emailing sample of questionnaires to the targeted population in Malaysia is employed.

Our research is quantitative research because it is predetermined and consists of large number of respondents. In addition to that, empirical assessment of research objectives is achieved by using numerical calculation and analysis.

Mathematical and statistical means is used to examine the effect between all research hypotheses. Research questionnaires covered in section B were measured using numeric rating scales which categorized under quantitative research. The sources of the information collected are extracted from the earlier administration of questionnaires and follow up collection of these questionnaires.

This study is a causal research because we seek to identify the effect on how independent variable such as organisational culture, organisational capability, knowledge management and perceived management support affecting the product innovation of Malaysian manufacturing firm.

3.2 Data Collection Methods

Wilcox, Gallagher, Boden- Albala & Bakken (2012) stated that collection of data is critical in a research project as it is the determinant of cost or success of a research project. Method used in interpretation of data is dictated by which data collection method being employed in the research. Kothari (2004) classified data collection methods into two; primary data and secondary data.

3.2.1 Primary data

Storey & Kelleher (1999) argued that primary sources derive in that period of time researchers are presently studying. Primary data give first- hand testaments or explicit information concerning a subject under research. They are created through documentation of the events or phenomena experienced by witnesses or recorders (California State University, 2012).

Kothari (2004) also defined that primary sources are ones that collected in the first place and no process is involved or need to go through during the collection of data. Primary data is widely adopted by many researchers as it addresses the problem on hand. Data can be obtained using observation, interview session with the respondent, by survey or distribution of questionnaires. In general, the use of questionnaires is common among other alternatives as it is simpler, efficient and lower cost than other methods proposed. The used of questionnaires allow researchers to analyse the information or data on hand productively and efficiently due to its traceability.

Table 3.2.1.1: Frequency of Respondents Based on Data Collection Methods

Methods	N	%
Distribution of Questionnaire	400	100
Total	400	100

Source: Developed based on our total distributed questionnaires.

3.2.2 Secondary Data

Secondary data defined as those data that had been collected by others researcher and it is not a first- hand data and already available and accessible (Kothari, 2004). Secondary data can be data received from books, newspaper, journals, magazine and internet resources (Sekaran et al., 2010). Internet resources refer to the obtainable online database such as ProQuest, ScienceDirect, EBSCOhost, and Oxford Journals that are used to retrieve relevant journals and articles. Secondary data can be collected by using journals, directories, articles, periodicals. Researcher can acquire secondary data faster and less expensive than obtaining first- hand primary data (Zikmund et al., 2010). Besides that, researcher can use electronic sources to retrieve data and directly stored it digitally. It is easier for collection of data and analysis of data.

3.3 Sampling Design

3.3.1 Target Population

Target population can be defined as a specified group of population which the researchers are keen to collect data or statistic from them (Hair and Bush, 2006). As for this research, employees in the manufacturing firm will be the targeted population of the study. In this research, target population is calculated according to the simplified decision model which was developed by Krejcie and Morgan (1970), in sample size (Sekaran et al., 2010). About 400 questionnaires have been distributed and sent to the respondents to avoid collection of unusable data.

According to the DOSM has study has included a total population in their study which recorded in the Economic Census 2011 has 2 main industries such as manufacturing and services sectors. The amount of population of registered companies are 631,552 ("National Survey Innovation", 2012). There are 3 distinctive categories which forms our sampling frame.

Table 3.3.1.1: Definition of Small, Medium, and Large Industries.

Manufacturing Sectors	
Small	Sales turnover between Rm250,000 and less than Rm10 million or full time employees of 5 to 50
Medium	Sales turnover between Rm10 million and Rm25million or full time employees of 51 to 150
Large	Sales turnover of more than Rm25million or full time employees of more than 150.

Source: "National Survey Innovation", 2012

Table 3.3.1.1 define the types of manufacturing firms in Malaysia. Our target population focuses on this small, medium, and large industry.

3.3.2 Sampling Frame and Sampling Location

Sampling frame is a source of material which the sample had been drawn from (Zikmund et al., 2010). Next to sampling frame, sampling location is the location or destination that the research had been conducted or the place that the information had been distributed and obtained. There are total 4 states that we have chosen; Bayan Lepas, Penang; Tasek Industrial Estate, Ipoh and Perdana Industrial Park Skudai Johor and below table 3.2 shows the total number of respondents based on states.

Table 3.3.2.1: Innovative Respondents Based on States.

States	Innovative (N)	%
Pulau Pinang	120	30
Kuala Lumpur	110	27.5
Perak	90	22.5
Johor	80	20
Total	400	100

Source: Developed based on our received research questionnaire

3.3.3 Sampling Element

In this research, the respondents that taking part in the survey mainly are the company's manager, senior executive, junior executive, and permanent staffs from manufacturing firms in Bayan Lepas, Penang; Tasek Industrial Estate, Ipoh and Perdana Industrial Park Skudai Johor.

Figure 3.3.3.1: Types of Respondent Taking Part in Our Study
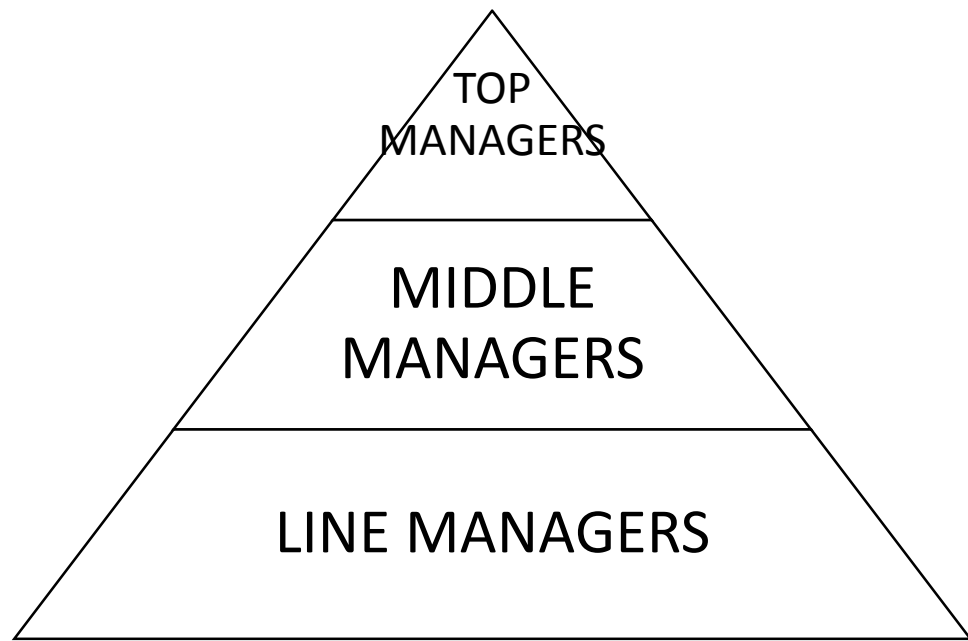
Source: Developed based on our sampling elements.

3.3.4 Sampling Technique

In this research we are using probability sampling. Due to the fact that every element in the probability sampling has a known nonzero probability of being sampled and also it involves random selection at any point.

In our research, we had chosen a hybrid method cluster and area sampling as our sampling method. First, cluster is used which is based on the heterogeneous groupings of different manufacturing firms located in Bayan Lepas, Penang; Tasek Industrial Estate, Ipoh and Perdana Industrial Park Skudai Johor. Secondly, cluster or our sampling is also using geographical cluster sampling due to the highly concentrated of the mentioned industrial areas. The reason for choosing our geographically is because of the dispersed areas of the manufacturing industries are located. It is extremely costly to collect sampling from each and every manufacturing firms within a designated location. Therefore, it is of greater economy than simple

random sampling could be achieved by finding several respondents within one cluster location area. Second reason is that feasibility of our sampling to the extent that it can be done due to the extremely large scale of manufacturing industries at various location.

3.3.5 Sampling Size

Sample size was recognised the representativeness of the sample for generalized to the population (Sekaran & Bougie, 2010). Total targeted population for this research is being calculated based on the staff working in the manufacturing industries.

Before the beginning of any formal survey, 30 sets of questionnaires had been distributed for the purpose of pilot test to ensure the validity of the questionnaires. Thus, the prior corrections can be made before conducting the formal survey. There are a total of 400 questionnaires were being prepared and distributed randomly to all manufacturing firm. The questionnaires are being delivered to employees in all manufacturing firm in the selected region. 320 questionnaires successfully collected from the chosen manufacturing firm.

Table 3.3.5.1: Total Questionnaire Distributed

Questionnaires	N	%
Distributed	400	100
Received *(% over Questionnaires Distributed)*	320	80
Rejected *(% over Questionnaires Distributed)*	120	30

Usable *(% over Questionnaires Distributed)*	200	50

Source: Developed based on Distributed and Received Questionnaires

3.4 Research Instrument

Research instrument is used for this research is the questionnaires that we created and ready for distribution. Questionnaire survey is selected due to the data gathered from the respondents is not time consuming and is also a low-cost alternative to obtain data requirement. The questionnaire is plotted in fixed-alternative which take lesser period to answer and it's not difficult for the respondent to answer (Zikmund et al. 2010). Our questionnaires use fixed-alternative which are simply-dichotomy question and determinant-choice question.

The questionnaire consists of two sections, section A and section B. Section A comprises questions on demographic profile. In the demographic profile (Section A), we are able to acquire a significant and the basic information about the respondents. As in the demographic profile (Section A) contains the components of respondent's gender, age, race, marital status, highest education completed, basic monthly income level and job position.

For Section B, the questions developed from the dependent variable and independent variables formed. The four antecedents of product innovation are organisation culture, organisation capability, knowledge management, and perceived organisational support. This will help to identify the firm's current product innovation and the relationship between the four antecedents.

A pilot test had conducted within a small group of respondents to inspect the potential problem of the research method or the design prior in the main research. The questionnaire was issued to the staff in the manufacturing industries. Besides

that, 30 sets of survey questionnaires that successfully answered and provide a consistent results are used to conduct pilot test study. The Statistical Analysis System Enterprise 5.1 program is used to test and verified the reliability of the questionnaires had also been carried out before the proceeding of actual survey. This is very important step as researchers are able to make any adjustment in the questionnaire that can improve the reliability of the test.

3.5 Construct Measurement

3.5.1 Origin and Measure of Construct

Table 3.5.1.1: Source Model of Construct Measurement

Items	Construct Measurement	Sources
Product Innovation	Our new products and services are often perceived as very unique by customers.	Wang & Ahmed (2004)
	Our company has introduced more innovative products during the past 5 years.	Wang & Ahmed (2004)
	Our company is rapidly bringing new products or services into the market.	Wang & Ahmed (2004)
	Our new products with functionalities that totally different from the current one.	Gurhan et al. (2011)
	Our company develop new products with components and different from the current one.	Gurhan et al. (2011)

Organisational Capability	The objective in our organisation help develops employees' competences towards innovation.	Hase (2000)
	Training program is conducted to improve our ability to enhance the generation of new idea.	Ouakouak, Ouedraogo, & Mbengue (2014).
	My firm had developed new management approaches to fulfill the changing needs of our customers.	Wang & Ahmed (2004)
	My firm's R&D is adequate to handle the development needs of new products.	Wang & Ahmed (2004)
	My firm utilizes different strategy and seek unusual, novel solutions for our customers.	Wang & Ahmad (2004)
Knowledge Management	Employees have skills that contribute to development of new product and opportunities.	Cummins, J.N. 2004
	There is free flow of relevant information in the organization.	Miller and Morris, (1999)
	Employees have skills that are needed to maintain high quality products/services.	Cummins, J.N. 2004

	Employees have skills that enable our company to provide exceptional customer value.	Cummins, J.N. 2004
	Employee's exchanges information for solving problems purposes.	Axley, 2000; Barua et al., 2007; Harshman & Harshman, 1999
Organisation Culture	Employees with creative ideas are able to improve firm's innovativeness.	Ng et al. (2012)
	My leader established a formal processes and activities to promote innovativeness.	Denison, D. R. (1990)
	Empowerment enables me to have a sense of ownership and responsibility toward the organisation which result in greater organisational effectiveness.	Ng et al. (2012)
	Group learning enables me to share, acquire, and combine knowledge through experience with one and another.	Denison, D. R. (1984)
	My firm tends to learn ways to understand and react to their customers needs.	Lukić et al. (2014)

Perceived Organisational Support	My supervisor contributes ideas regarding new product concepts that are helpful for my workgroup.	Michael P. O'Driscoll, Donna M. Randall (1999)
	The management is able to assist me further on new product development.	Robert Eisenberger, Peter Fasolo & Valerie Davis-LaMastro (1990).
	My company makes wise decisions on new product development in order to be more competitive in the marketplace.	Muse, L. A., & Stampler, C. L. (2007).
	My company provides sufficient resources and information to undergo research for new product generation.	Schaufeli, W. B., & Bakker, A. B. (2004).
	Support staff in my workplace have the skills and knowledge to provide effective guidance to the employees on pursuing their research on new product developments.	David D., Martha C., & Neil S. (2007).

3.5.2 Scale of Measurement

Scale of measurement, commonly describes by researchers defined as various methods they measure things numerically in which categorized into four: nominal, ordinal, interval or ratio scales (SHIKEN, 2011). Measurement refers to process of collecting data in the form of numbers and the number represent and conveys some information needed while scale is a mean used to measure the grade of variable or object tested. Sekaran et al. (2010) stated that scale of measurement is a tool that can be used to determine the relationship of variable between different objects that have different scale value.

3.5.2.1 Nominal Scale

The definition provided by Zikmund, et al. (2010) is a nominal scale allow researchers obtain recognize or categorization purpose of the subject by assigning each with a value and that, will not serve any ranking or quantities function. It is the simplest and most basic level scale measurement. Candidates only required to fill up the answer by circling or ticked the choices that have been suggested in the questionnaires. The following is the example of nominal scale

Gender:

□ Female

□ Male

3.5.2.2 Ordinal Scale

Ordinal scales pertains some characteristics of nominal scales. Zikmund et al. (2010) defined that ordinal scale give the subject to be placed accordingly. Achieving not only identification and classification of subjects but also assigning ranking orders to variable respectively. The following is an example of ordinal scale question.

Highest education completed (Please state the fields of study):

Diploma _____

Degree _____

Master _____

PhD _____

Others _____

3.5.2.3 Likert Scale

A range of 1- 5 is stated for respondent to choose and that best expressed their perception towards innovativeness of the organisation. Five Point Likert scale is the best when it comes to Section B as it is able to measure and articulate the respondent's attitude and behaviour. It is to be considered as the extent of respondents towards several Likert subjects. 'Our new products and services often perceived as very novel by customers' is a Likert question. The table below show Likert Scale as a whole

Dimension: Product Innovation	SD	D	N	A	SA
Our new products and services are often perceived as very novel by customers.	1	2	3	4	5

3.6 Data Processing

Data processing referred to the description of data preparation. The steps contained in the process include transcribing, coding, editing and identify any distinctive or uncommon treatments of data before it is used to analyse.

3.6.1 Data Checking

This is the first step in the data processing. This is very important step as researchers can ensure that there is no missing answer in every question of the distributed questionnaire. Through this process, researchers can assure that the questionnaires are completed by the respondents.

3.6.2 Data Editing

Data Editing is the second step of data processing. Scanning and editing the information in the questionnaire allow researchers to check and adjust data for omissions, consistency and legibility (Zikmund et al., 2010). Once an error found in the questionnaires, for example certain answers from the respondents have missing or answering more than one in certain questions. The researchers will make adjustment the data to make them more complete, accurate and consistent (Zikmund et al., 2010).

3.6.3 Data Coding

The third step is data coding. Data Coding is a process whereby include identifying and classifying each answer with a numerical score or character symbol (Zikmund et al., 2010).

In Section A of the questionnaire, the answer for each question is coded as below:

Q1.	Gender	"Female" is coded as 1
		"Male" is coded as 2
		"Missing Data" is coded as 99
Q2.	Age	"18-20" is coded as 1
		"21 – 30" is coded as 2
		"31 – 40" is coded as 3
		"41 – 50" is coded as 4
		"More than 51" is coded as 5
		"Missing Data" is coded as 99
Q3.	Race	"Malay" is coded as 1
		"Chinese" is coded as 2
		"Indian" is coded as 3
		"Others" is coded as 4
		"Missing Data" is coded as 99
Q4.	Marital Status	"Single" is coded as 1
		"Married" is coded as 2
		"Others" is coded as 3
		"Missing Data" is coded 99

Q5.	Highest education completed	"Diploma" is coded as 1
		"Bachelor Degree" is coded as 2
		"Master's /PhD Degree" is coded as 3
		"Others" is coded as 4
		"Missing Data" is coded as 99
Q6.	Basic Monthly Income Level	"Below RM 2000" is coded as 1
		"RM 2001 – RM 3000" is coded as 2
		"RM 3001 – RM 4000" is coded as 3
		"RM 4001 – RM 5000" is coded as 4
		"RM 5001 – RM6000" is coded as 5
		" RM6001 – RM 7000" is coded as 6
		"Above RM 7000" is coded as 7
		"Missing Data" is coded as 99

Q7.	Job Type	"Part - Time" is coded as 1
		"Full Time" is coded as 2
		"Internship" is coded as 3
		"Temporary" is coded as 4
		"Others" is coded as 5
		"Missing Data" is coded as 99
Q8.	Total Working Experience in Manufacturing Firm	"0 – 5" is coded as 1
		"6 – 10" is coded as 2
		"11 – 15" is coded as 3
		"15 – 20" is coded as 4
		"More than 20 years" is coded as 5
		"Missing Data" is coded as 99

While in Section B of the questionnaire, the answer for each question is coded as below:

| "Strongly Disagree" is coded as 1 |
| "Disagree" is coded as 2 |
| "Neutral" is coded as 3 |
| "Agree" is coded as 4 |

3.6.4 Data Transcribing

Last but not least, data transcribing is the final step of data processing by which the coded data is then transcribed into Statistical Analysis System Enterprise Guide 5.1 (SAS) software for farther data analysis.

3.7 Data analysis

Data analysis is the process of entering those data that have been wrongly collected or coded incorrectly into the data set. Editing and coding are the two important requirements in the data analysis process. To analyse the data collected, the SAS (Statistical Analysis System) software is capable to use for this research. Data analysis found to be the most difficult part in the quantitative research.

3.7.1 Descriptive Analysis

Descriptive analysis denotes to the elementary transformation of data in such method to define the basic characteristic such as tendency, distribution and variability (Zikmunds et al., 2010). Modes, median, mean variance, range and standard deviation are statistics that generally apply or used in descriptive statistics. In this study, frequency analysis is used on a set of data which assists the researcher convert the data into histogram, bar charts, and pie charts according each variable. This analysis simply depicts that the data are collected through the distribution of questionnaire. Besides that Zikmunds et al. (2010) also mentioned that histogram can be defined as a graphical way of showing a frequency distribution in which height of a bar corresponds to the observed frequency of the category. A bar chart is the fundamental numerical comparisons which display data.in the forms of bars, either vertically or horizontally. A pie chart is a circular design which is divided into sector. Each of the sectors exhibits the data set that match the percentage of the total data set.

3.7.2 Scale Measurement

The primary benchmarks that were used for assessing the measurement and capacity in this research is reliability and validity. A decent measurement should be equally consistent and accurate. Reliability represents the consistency of measurement, while validity serve as how measurement accesses the predetermined concept.

3.7.2.1 Reliability test

Reliability test is a standard by which it measure internal consistency. In the scale measurement, reliability test is used to obtain reliable result from the data collected which derived from questionnaire. Reliability plays an important role on stating degree to which measures are free from errors, therefore have consistent results (Sekaran, 2003). Cronbach's alpha (α) was the most frequently applied to estimate of a multiple-item scale's reliability and it shows the average of all possible split-half reliabilities for a multiple-item scale (Zikmund et al., 2010).

In order to calculate the Cronbach's alpha, Statistical Analysis System Software (SAS) is being used. Whereas, the scale with Cronbach's alpha is shows the result 0, it refers to there is no consistency, and the result of 1 represent the complete consistency According to Zikmund et al. (2010), the standard coefficient alpha (α) is stated as follow:

$\alpha = 0.80$ to 0.95, which considered as very good reliability
$\alpha = 0.70$ to 0.80, which considered as good reliability
$\alpha = 0.60$ to 0.70, which considered as fair reliability
$\alpha = <0.60$, which consider as poor reliability

3.7.2.2 Validity test

According to Zikmund et al. (2010), validity is whether the test measured what it is proclaimed to examined and at the same time achieving accuracy of the measures. Validity test allow variables to be examined for its level of accuracy and this is also to ensure that results to be accurately tested and elucidated.

3.7.2.3 Pilot test

Pilot test is considered to be the evaluation on how a group of respondents from the targeted population react to the questionnaires. Before a formal statistical testing, thirty respondents are being chosen to conduct a pilot study whereby it is a pre- attempt research to access and alter the procedure for the next following, more complex study. The main objective of conducting this test enable researcher to identify the reliability level of the data obtained from the questionnaires. Table 3.7.2.3.1 show the relationship between strength of association and Cronbach's alpha coefficient.

Based on the table shown above, variables with a Cronbach's alpha coefficient of more than 0.6 proven to be reliable while a Cronbach's alpha coefficient of less than 0.6 is perceived to be not a reliable data. The acceptable level of the average Cronbach's alpha coefficient is at 0.7 above. It depict that the questionnaires designed attain some degree of reliability and could be distributed to targeted respondents and proceed to the next full test needed.

Table 3.7.2.3.1: Relationship between strength of association and
Cronbach's Alpha coefficient

Part	Variable	Items	Scale	Reliability Result
A	Independent Variable	Perceived Organizational Support	Interval	0.736757
		Knowledge Management	Interval	0.819546
		Organisational Capability	Interval	0.799857
		Organisational Culture	Interval	0.845611
B	Dependent Variable	Product Innovation	Interval	0.863551

Source: Developed for the research

3.7.3 Inferential Analysis

In this research, Likert scale is used in the questionnaire to test the relationship between the variables. Likert scale is a type of interval scale which developed to examine how strongly the respondent felt towards the statements on a five-point scale. The variables of our research are considered as metric. Metric variables are those that can measure the items in terms of differences in sizes. Pearson Correlation Matrix and Multiple Regression Analysis are chosen to conclude the relationship among

organization culture, organization capability, knowledge management and management support.

3.7.3.1 Pearson Correlation Coefficient

For ratio or interval scale, Pearson Correlation is best to determine the strength of association between each variable. Sekaran et al. (2012) defined that Pearson Correlation able to tell both the strength and direction of the variables as it ranges from -1.0 to +1.0. A perfectly positive correlated variable will have the correlation coefficient of 1.0, a positive linear relationship. Vice versa, a perfectly negative correlated variable will have the correlation coefficient of -1.0. A value less than 0.5 indicates a weak correlation while coefficient value more than 0.8 displays a strong correlation.

The connotation is that one variable is a mirror image of the other. For example, we measure two variable X and Y. The greater the value measured by variable X, the lower the value measured by variable Y, which means there is a vice versa relationship in proportion when ones goes up and the others goes down. A correlation coefficient represents both magnitude of linear relationship and the direction of that relationship. If associated value of X and Y, differ from their means in the opposite direction, their covariance would be negative and vice versa. Table 3.7.3.1.1 shows the rules and instructions of thumb about Correlation Coefficient size.

Table 3.7.3.1.1: Correlation Coefficient size

Pearson Correlation Range	Strength of Association
± 0.81 to ± 1.00	Very Strong
± 0.61 to ± 0.80	Strong
± 0.41 to ± 0.60	Moderate
± 0.21 to ± 0.40	Weak
± 0.20	Very Weak
0	None

Source: Sekaran, U. & Bougie, R. (2010).

In this research, Pearson correlation coefficient is used to measure and identify the effects between dependent variable with the four independent variables..

Pearson Correlation Coefficient is used to test the following hypotheses:

H1: There is a positive effect between organizational factors and product innovation in Malaysian manufacturing industry.

H2: There is a positive effect between organisational capabilities and product innovation in Malaysian manufacturing industry.

H3: There is a positive effect between knowledge management and product innovation in Malaysian manufacturing industry.

H4: There is a positive effect between perceived organisational supports and product innovation in Malaysian manufacturing industry.

H5: There is a positive effect between organisational culture and product innovation in Malaysian manufacturing industry.

Therefore this test is able to show us the significant impact, relationships and strength between those independent variables and the dependent variable.

3.7.3.2 Multiple Regressions Analysis

Sekaran and Bougie (2012) defined that multiple regression analysis adopt various independent dependent variables to express the variance obtained for the dependent variable. It is also an analysis or determination of the relationship whereby the effect of few independent variables on a single dependent variable is examined in the meantime. The following is the formula equation for multiple regress analysis:

The formula equation for multiple regression analysis:

$Yi = b0 + b1X1 + b2X2 + b3X3 + \ldots + bnXn + ei$

It is a continuation of simple regression analysis where it allowed a metric dependent variable to be anticipated by multiple independent variables. For example, product innovation (dependent variable) can be explained by one independent variable which was organisation capability. This analysis allowed two or more independent variables to be tested with one dependent variable at the same time. Therefore, the equation of multiple regressions will reflect the values of several variables rather than just one single predictor variables.

The formula equation for multiple regression analysis to test our hypothesis:

Product Innovation = b0 + b1*organisational capability + b2*knowledge management + b3*perceived organisational support + b4*organisational support

3.8 Conclusion

In general, Chapter 3 has highlighted and described on what and how research methodology was picked, conducted and executed precisely. In addition to that, chosen research design and sampling design have also been amplified in the chapter provided with illustration. The mean, measure and approaches used to obtain primary sources, secondary data and chosen research instrument have been given further elaborations to explain on why we have chosen them to conduct our research. Chapter 3 also discussed on the assessment of each variable, the process of data collected and also analysis of the primary and secondary sources. As for the following chapter, result from SAS software will be clarified in detail.

CHAPTER 4: RESEARCH RESULT

4.0 Introduction

In the preceding chapter, we had successfully collected 320 completed surveys from the respondents. Unfortunately, there is still remaining uncollected 80 sets of questionnaires are able to use for our research purpose. In Chapter 4 of this research project, we had critically studied and reviewed the collected data that has been distributed to the manufacturing industries at Bayan Lepas, Penang; Tasek Industrial Estate, Ipoh and Perdana Industrial Park Skudai, Johor. The examination of the collected data will be accessible in patterns of outcomes which are relevant to the hypotheses that has been stated in Chapter 1 and Chapter 2. Moreover, the respondents' demographic profile such as age, gender, race, marital status, highest education completed, basic monthly income level, job type and total working experience.

4.1 Descriptive Analysis

The analysis of the respondents' demographic profile will be deliberated and discussed in this research.

4.1.1 Respondent Demographic Profile

Respondents who participate is required to provide answers of the 8 questions regarding on the demographic profiles, which consists of gender, age, marital status, highest education completed, job type, race, basic monthly income level and total working experience.

4.1.1.1 Gender

Table 4.1.1.1.1: Gender of Respondents

	Frequency	Percent (%)	Cumulative Frequency	Cumulative Percent (%)
Female	106	53.00	106	53.00
Male	94	47.00	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.1.1: Descriptive analysis of the respondents' Gender
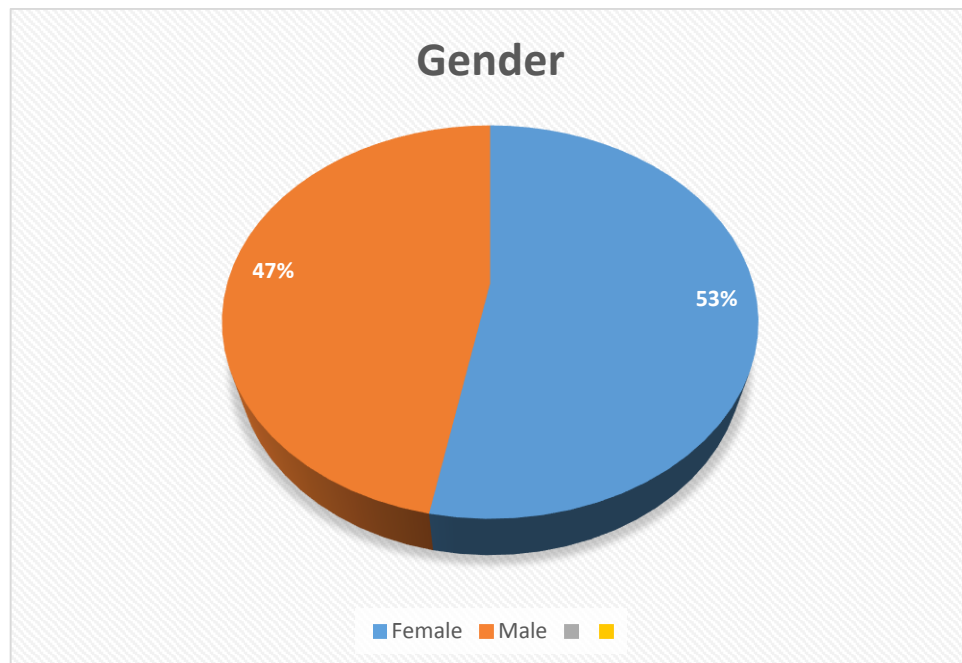
Source: Developed for Research Purpose

Regarding on Table 4.1.1.1.1 and Figure 4.1.1.1 shows the differences in gender participate and involved themselves in the questionnaires survey. There are a total of 106 female which represents 543% and 94 male which represents 47%. As the above of the figure and table shows that most female respondents participate on the survey questionnaire.

4.1.1.2 Age

Table 4.1.1.2.1: Descriptive analysis of respondents' Age

Age	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
18 – 20	8	4.00	8	4.00
21 – 30	42	21.00	50	25.00
31 – 40	69	34.50	119	59.50
41 – 50	41	20.50	160	80.00
More than 51	40	20.00	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.2.1: Descriptive analysis of respondents' Age
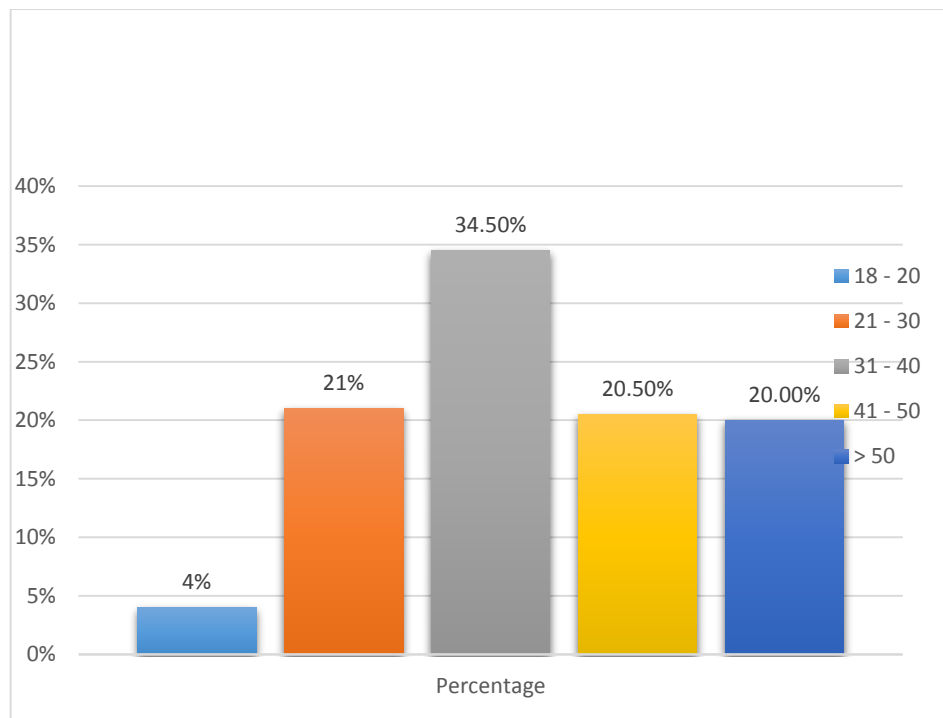
Source: Developed for Research Purpose

Table 4.1.1.2.1 and Figure 4.1.1.2.1 above represents the age array of the respondents. The highest age range is at 31 to 40 years old which 69 respondents with a percentage of 34.50% is. Next, age range of 21 to 30 years old consists of 42 participants which is 21% of the respondent population. Next, follow by respondents who are age range of 41 to 50 years old consists of 41 respondents which is 20.50%. While, aged more than 51 years old comprise of 40 respondents which weigh of 20%. Moreover. However, the lowest age range of 18 to 20 years old which is only 4%, 8 respondents involved.

4.1.1.3 Race

Table 4.1.1.3.1: Descriptive analysis of respondents' Race

Race	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
Malay	32	16.00	32	16.00
Chinese	134	67.00	166	83.00
Indian	24	12.00	190	95.00
Others	10	5.00	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

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Figure 4.1.1.3.1: Descriptive analysis of respondents' Race
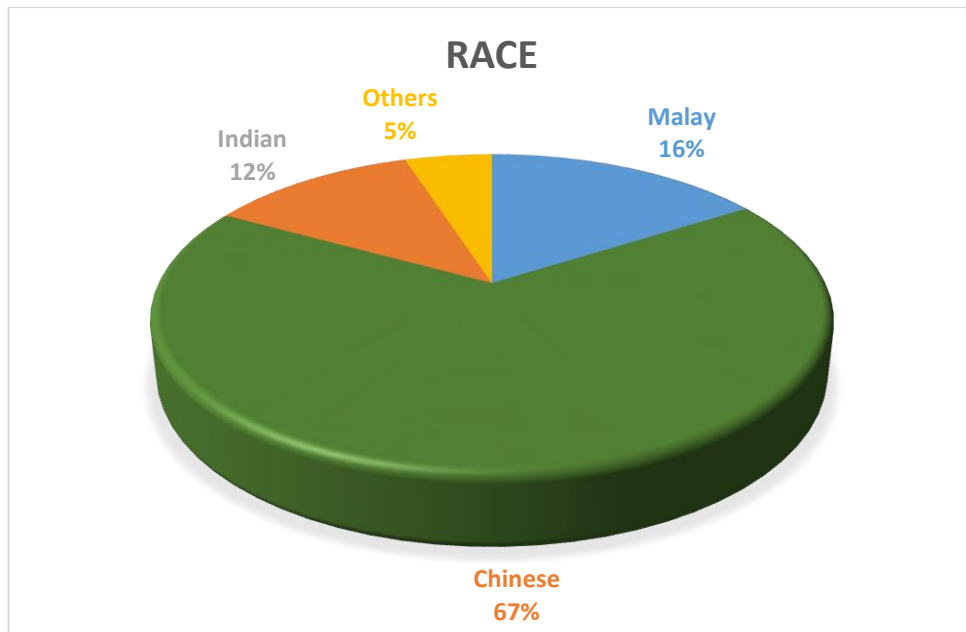
Source: Developed for Research Purpose

Above pie chart represent Chinese is the largest ethnic group that participates in our research by filling out the survey questionnaires. As Chinese group comprises of 67% which is 134 respondents. Follow by the Malay group containing of 16% (21 respondents). Next, there would be the Indian which consists of 24% (12 respondents). While the smallest ethnic group would be other which has the percentage of 5% (10 respondents).

4.1.1.4 Marital Status

Table 4.1.1.4.1: Descriptive analysis of respondents' Marital Status

Marital Status	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
Single	88	44.00	88	44.00
Married	107	53.50	195	97.50
Others	5	2.50	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.4.1: Descriptive analysis of respondents' Marital Status
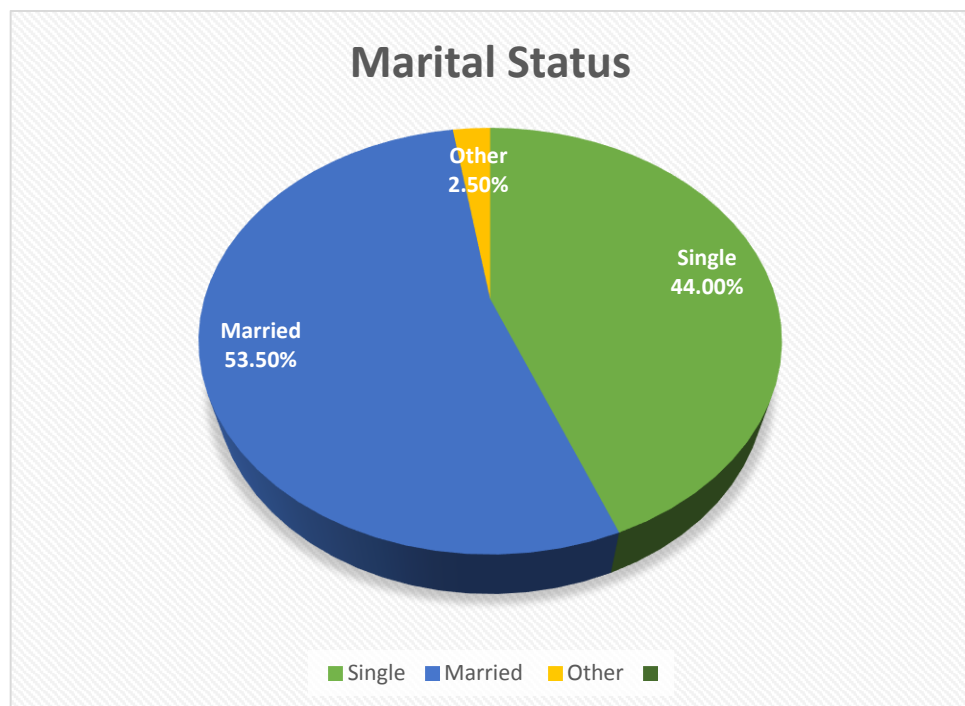
Source: Developed for Research Purpose

In the Table 4.1.1.4.1 and Figure 4.1.1.4.1, we have studied that, there are the sum amount of 200 respondents and married status has 107 respondents (53%), whereas in total 88 respondents of them (44%) are still remain as single. However, 5 respondents (3%) is on other status.

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4.1.1.5 Highest Education Completed

Table 4.1.1.5.1: Descriptive analysis of respondents' Highest Education Completed

Highest Education Completed	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
Diploma	30	15.00	30	15.00
Bachelor Degree	142	71.00	172	86.00
Master's/ PhD Degree	20	10.00	192	96.00
Others	8	4.00	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.5.1: Descriptive analysis of Highest Education Completed
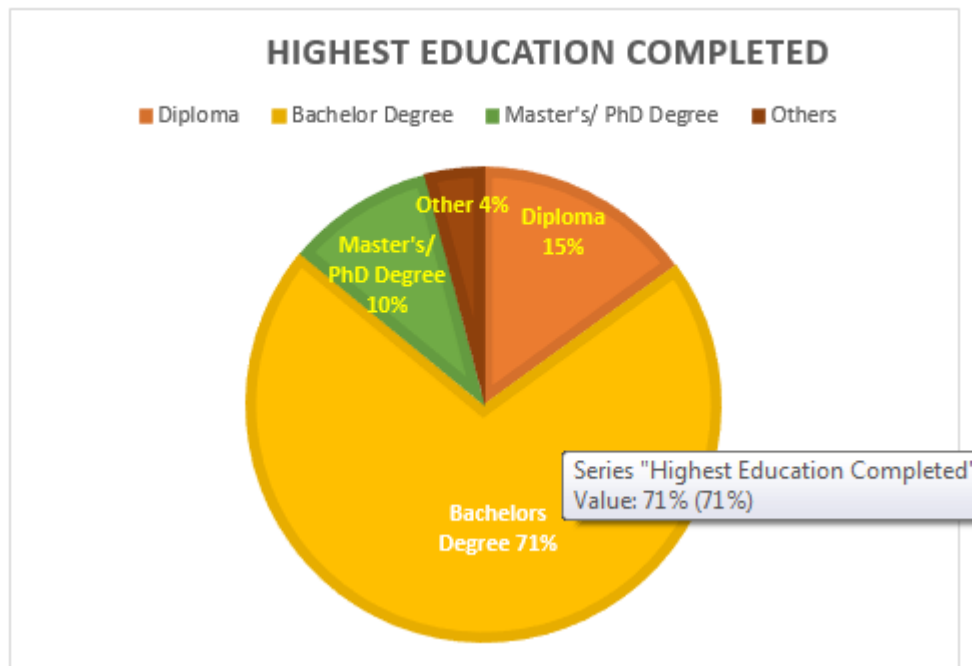
Source: Developed for Research Purpose

In Table 4.1.1.5.1 and Figure 4.1.1.5.1 shows the highest education achieved by the respondents. It consists of 4 categories which are Diploma Level, Bachelor's Degree Level, Master's/ PhD Degree Level and others. Above table that signifies the highest educational level achieved by the majority respondents is Bachelor Degree which is 142 respondents in total and a percentage of 71%. Secondly, 30 or 15% of the respondents who graduated as in Diploma levels. Thirdly, 20 respondents or 10% who have successfully completed their Master's/ PhD Degree. Lastly, the lowest among them all is other which is 8 respondents that holds the percentage of 4%.

4.1.1.6 Basic Monthly Income Level

Table 4.1.1.6.1: Descriptive analysis of respondents' Basic Monthly Income Level

Basic Monthly Income Level	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
Below RM2000	9	4.50	9	4.50
RM2001 – RM3000	100	50.00	109	54.50
RM3001 – RM4000	68	34.00	177	88.50
RM4001 – RM5000	8	4.00	185	92.50
RM5001 – RM6000	2	1.00	187	93.50
RM6001 – RM7000	6	3.00	193	96.50
Above RM7000	7	3.50	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.6.1: Descriptive analysis of respondents' Basic Monthly Income
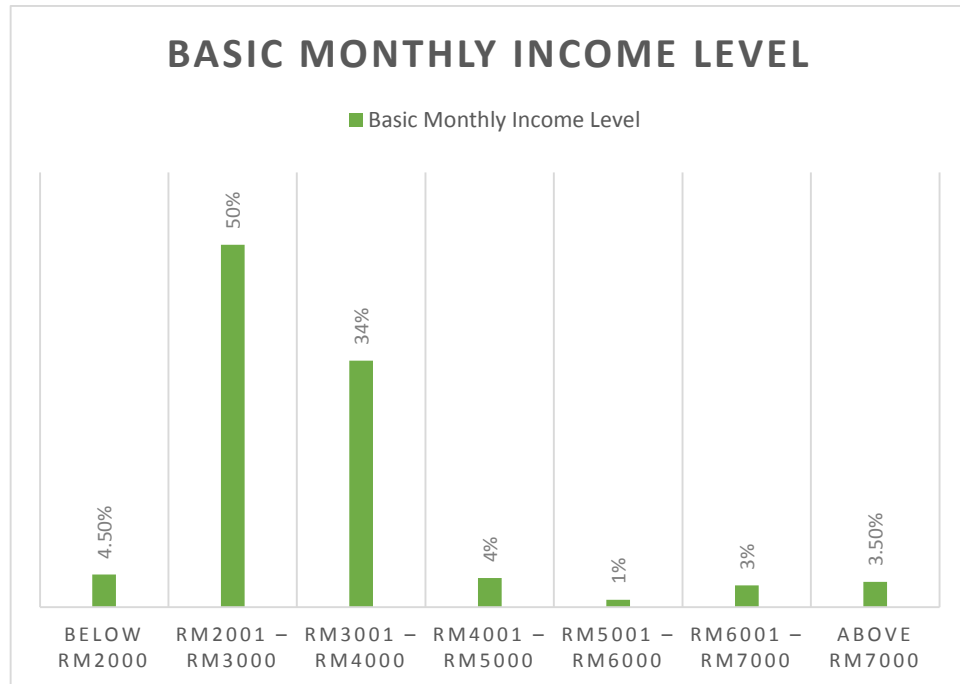
Source: Developed for Research Purpose

In above table 4.1.1.6.1 and Figure 4.1.1.6.1 displays that the basic monthly income level of the 200 respondents. The highest income group is RM2001 – RM3000 which is 50 % (100 Respondents). Next, there would be RM3001 – RM4000 which comprise of 34% (68 Respondents) of the total respondents. On the other hand, below RM2000 consists of 4.50% (9 Respondents). As for that, RM4001 – RM5000 contains of 4% (8 Respondents). Whereas, respondent group to earn a salary of range above RM7000 consists of 3.50% (7 Respondents) of total respondents. Respondent group who earns the salary of range RM5001 – RM6000 is 3% (6 Respondents). Last but not the least, Respondent group who earns the salary of range RM6001 – RM7000 is 1% (2 Respondents).

4.1.1.7 Job Type

Table 4.1.1.7.1: Descriptive analysis of respondents' Job Type

Job Type	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
Part Time	3	1.50	3	1.50
Full Time	188	94.00	191	95.50
Internship	2	1.00	198	99.00
Others	2	1.00	200	100.00

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.7.1: Descriptive analysis of respondents' Job Type
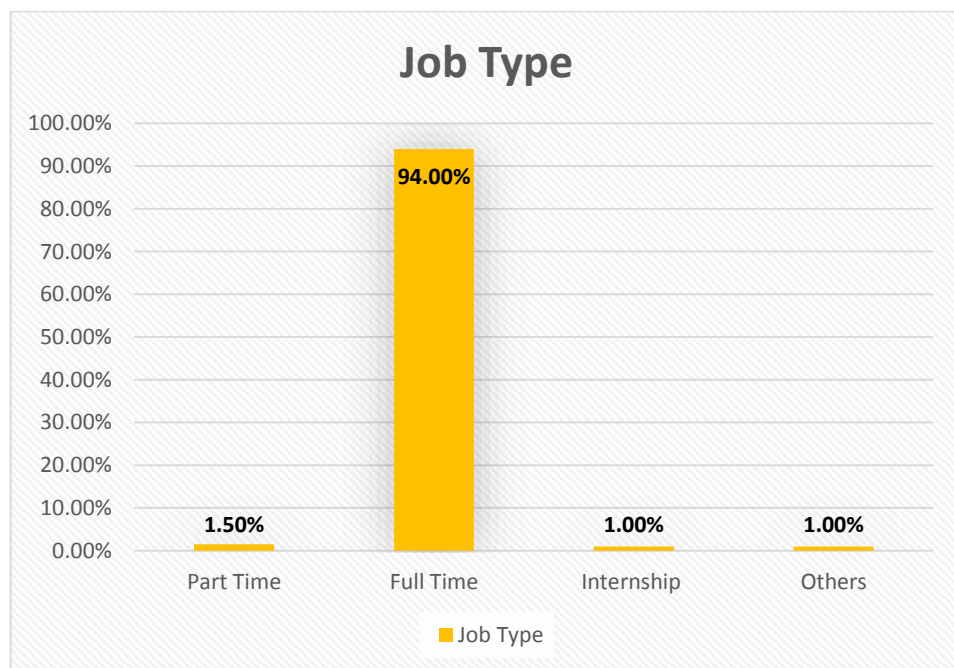
Source: Developed for Research Purpose

In Table 4.1.1.7.1 and Figure 4.1.1.7.1 represents the job type of the respondents. In the results shows that there are a total of 94% (188 Respondents) is work as a full time basis employees. Follow by 1.50% (3 Respondents) of them are part timers. However, internship and others shares a similar percentage of 1% which is 2 respondents respectively.

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4.1.1.8 Total Working Experience

Table 4.1.1.8.1: Descriptive analysis of respondents' Total Working Experience

Total Working Experience (Years)	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent (%)
0 - 5	153	76.50	153	76.50
6 – 10	39	19.50	192	96.00
11 – 15	5	2.50	197	98.50
16 – 20	3	1.50	200	100.00
>20	0	0	0	0

Source: Generated from SAS Enterprise Guide 5.1

Figure 4.1.1.8.1: Descriptive analysis of respondents' Total Working Experience
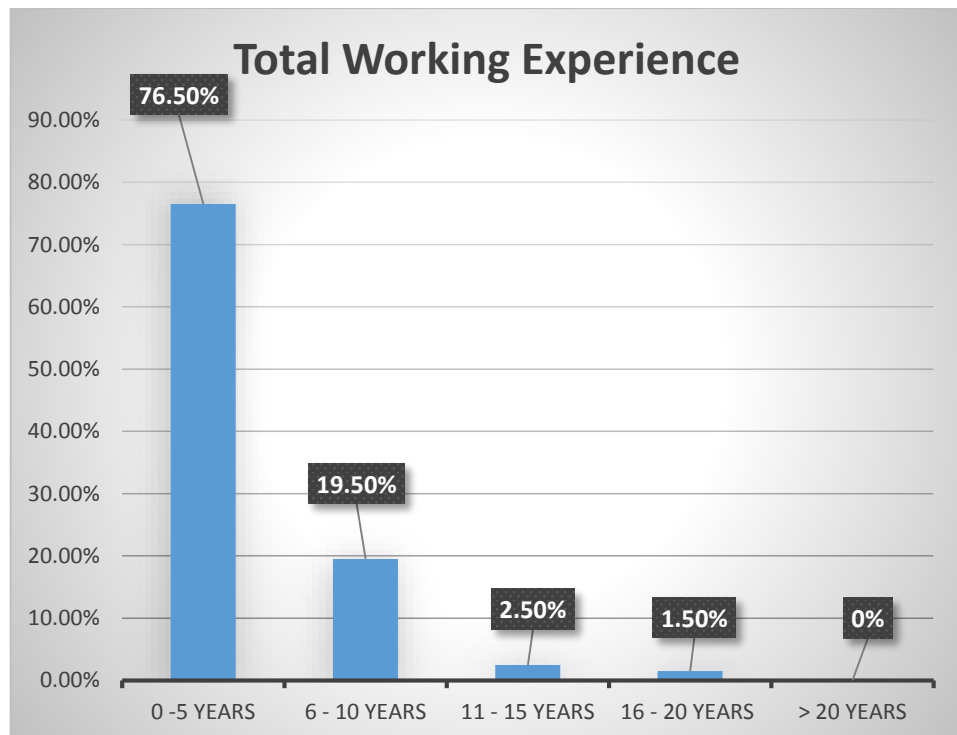
Source: Developed for Research Purpose

In Table 4.1.1.8.1 and Figure 4.1.1.8.1 represents the job type of the respondents. In the results shows that there are the amount of 76.50% (153 Respondents) who has the range between 0 to 5 years working experience. Follow by, 19.50% (39 Respondents) has the range of 6 to 10 years of working experience. Next, a total working experience 11 to 15 years consists of 2.50% (5 Respondents). Then, there are the total of 1.50% (3 Respondents) who has a total working experience for 16 to 20 years. However, there are none employees or staff obtained a more than 20 years of total working experiences.

4.1.2 Central Tendencies Measurement of Constructs

The measurement of central tendencies is used in this research to enable us to determine the mean score for the interval-scaled constructs. In our paper, we are using 5-point Likert scale to measure the response from respondents. Hence, the scale was used in calculating our mean and standard deviation. There are a total of 25 questions with mean, standard deviation and variance calculated by using SAS software.

The result obtained from SAS output is as followed.

Table 4.1.2.1: Descriptive Statistic for Product Innovation

Statement	Mean	Standard Deviation	Rank
Our new products and services are often perceived as very unique by customers.	2.755	1.43	1
Our company has introduced more innovative products during the past 5 years.	2.680	1.21	5

Our company is rapidly bringing new products or services into the market.	2.605	1.22	4
Our new products with functionalities that totally different from the current one.	2.590	1.32	2
Our company develop new products with components and different from the current one.	2.735	1.28	3

Table 4.1.2.1 is the result for response from targeted respondents toward product innovation.

From the table, the statement of "Our new products and services are often perceived as very unique by customers" has the highest mean which was 2.755, indicating the response toward this statement is generally close to strongly agree.

As a comparison, the lowest mean is 2.590 for the statement of "Our new products with functionalities that totally different from the current one", indicating the response toward this statement is most close to the neutral point.

The highest standard deviation is from the statement of "Our new products and services are often perceived as very unique by customers" which is 1.43, indicating the response toward this statement has higher dispersion rate as compare to others. The customers are probably uncertain to this statement. Thus, we rank this statement as top 1.

The lowest standard deviation is from the statement of "Our company has introduced more innovative products during the past 5 years" which is 1.21, indicating the response toward this statement has lower dispersion rate as compare to others. The customers are generally giving the same rating to this statement. Thus, we rank this statement as the lowest one.

Table 4.1.2.2: Descriptive Statistic for Organisational Capability

Statement	Mean	Standard Deviation	Rank
The objective in our organisation help develops employees' competencies toward innovation.	2.695	1.38	1
Training program is conducted to improve our ability to enhance the generation of new idea.	2.690	1.20	4
My firm had developed new management approaches to fulfil the changing needs of our customers.	2.650	1.19	5
My firm's R&D is adequate to handle the development needs of new products.	2.630	1.26	3
My firm utilises different strategy and seek unusual, novel solutions for our customers.	2.815	1.30	2

Table 4.1.2.2 is the result for response from targeted respondents toward organisational capability.

From the table, the statement of "My firm utilises different strategy and seek unusual, novel solutions for our customers" has the highest mean which was 2.815, indicating the response toward this statement is generally close to strongly agree.

As a comparison, the lowest mean which is 2.630 for the statement of "My firm's R&D is adequate to handle the development needs of new products", indicating the response toward this statement is most close to the neutral point.

The highest standard deviation is from the statement of "The objective in our organisation help develops employees' competencies toward innovation" which is 1.38, indicating the response toward this statement has higher dispersion rate as compare to others. The customers are probably uncertain to this statement. Thus, we rank this statement as top 1.

The lowest standard deviation is from the statement of "My firm had developed new management approaches to fulfil the changing needs of our customers" which is 1.19, indicating the response toward this statement has lower dispersion rate as compare to others. The customers are generally giving the same rating to this statement. Thus, we rank this statement as the lowest one.

Table 4.1.2.3: Descriptive Statistic for Knowledge Management

Statement	Mean	Standard Deviation	Rank
Employees have skills that contribute to development of new product and opportunities.	2.730	1.43	1

There is free flow of relevant information in the organisation.	2.645	1.12	5
Employees have skills that are needed to maintain high quality products/services.	2.565	1.18	4
Employees have skills that enable our company to provide exceptional customer value.	2.635	1.285	2
Employees exchange information among each other for solving problems purposes.	2.695	1.24	3

Table 4.1.2.3 is the result for response from targeted respondents toward knowledge management.

From the table, the statement of "Employees have skills that contribute to development of new product and opportunities" has the highest mean which is 2.730, indicating the response toward this statement is generally close to strongly agree.

As a comparison, the lowest mean is 2.565 for the statement of "Employees have skills that are needed to maintain high quality products/services", indicating the response toward this statement is most close to the neutral point.

The highest standard deviation is from the statement of "Employees have skills that contribute to development of new product and opportunities" which is 1.43, indicating the response toward this statement has higher dispersion rate as compare to others. The customers are probably uncertain to this statement. Thus, we rank this statement as top 1.

The lowest standard deviation is from the statement of "There is free flow of relevant information in the organisation" which is 1.12, indicating the response toward this statement has lower dispersion rate as compare to others. The customers are generally giving the same rating to this statement. Thus, we rank this statement as the lowest one.

Table 4.1.2.4: Descriptive Statistic for Organisational Support

Statement	Mean	Standard Deviation	Rank
My supervisors contribute ideas regarding new product concept that are helpful for my workgroup.	2.680	1.40	1
The management is able to assist me further on new product development.	2.625	1.16	5
My company makes wise decisions on new product development in order to be more competitive in the marketplace.	2.630	1.17	4
My company provides sufficient resources and information to undergo research for new product generation.	2.635	1.25	3
Supportive staff in my workplace has the skills and knowledge to provide effective guidance to the employees in pursuing their research on new product developments.	2.650	1.26	2

Table 4.1.2.4 is the result for response from targeted respondents toward organisational support.

From the table, the statement of "My supervisors contribute ideas regarding new product concept that are helpful for my workgroup" has the highest mean which was 2.680, indicating the response toward this statement is generally close to strongly agree.

As a comparison, the lowest mean which is 2.625 for the statement of "The management is able to assist me further on new product development", indicating the response toward this statement is most close to the neutral point.

The highest standard deviation is from the statement of "My supervisors contribute ideas regarding new product concept that are helpful for my workgroup." which is 1.40, indicating the response toward this statement has higher dispersion rate as compare to others. The customers are probably uncertain to this statement. Thus, we rank this statement as top 1.

The lowest standard deviation is from the statement of "The management is able to assist me further on new product development" which is 1.16, indicating the response toward this statement has lower dispersion rate as compare to others. The customers are generally giving the same rating to this statement. Thus, we rank this statement as the lowest one.

Table 4.1.2.5: Descriptive Statistic for Organisational Culture

Statement	Mean	Standard Deviation	Rank
Employees with creative ideas are able to improve firm's innovativeness.	2.575	1.37	1

My leader established a formal processes and activities to promote innovativeness.	2.640	1.16	5
Empowerment enables me to have a sense of ownership and responsibility toward the organisation which result in greater organisational effectiveness.	2.620	1.20	4
Group learning enables me to share, acquire, and combine knowledge through experience with one and another.	2.625	1.27	3
My firm tends to learn ways to understand and react to their customer's needs.	2.730	1.27	2

Table 4.1.2.5 is the result for response from targeted respondents toward organisational culture.

From the table, the statement of "My firm tends to learn ways to understand and react to their customer's needs" has the highest mean which was 2.730, indicating the response toward this statement is generally close to strongly agree.

As a comparison, the lowest mean which is 2.625 for the statement of "Employees with creative ideas are able to improve firm's innovativeness", indicating the response toward this statement is most close to the neutral point.

The highest standard deviation is from the statement of "Employees with creative ideas are able to improve firm's innovativeness" which is 1.37,

indicating the response toward this statement has higher dispersion rate as compare to others. The customers are probably uncertain to this statement. Thus, we rank this statement as top 1.

The lowest standard deviation is from the statement of "My leader established a formal processes and activities to promote innovativeness" which is 1.16, indicating the response toward this statement has lower dispersion rate as compare to others. The customers are generally giving the same rating to this statement. Thus, we rank this statement as the lowest one.

4.2 Scale Measurement

4.2.1 Internal Reliability Test

Table 4.2.1.1 Cronbach's Alpha Reliability Test

	Coefficient Alpha Value	Number of Items
Dependent Variable : Product Innovation	0.890	5
Independent Variables: Organisational Capabilities	0.837	5
Knowledge Management	0.809	5
Perceived Organisational Support	0.808	5
Organisational Culture	0.801	5

Source: Developed for the Research Purpose.

According to Sekaran and Bougie (2012) specifies that process that are free from errors and produce consistent outcome or results are the significance of reliability. The SAS Enteprise Guide 5.1 is used for reliability testing and

analysis in order to assess the independent variable of organisational capabilities, knowledge management, perceived organisational support and organisational culture. On this research, there are a total of 200 respondents are involved on answering the survey questionnaires and reliability test is conducted.

As shown in table 4.2.1.1 is the results of each components. The four stated independent variables represents a good reliability. The variables are oganisational capabilities scores the greatest of Cronbach's alpha of 0.837. While knowledge management obtained a Cronbach's alpha of 0.809. Then, perceived organisational support which acquired a score of Cronbach's alpha 0.808. Follow by organisational culture which has a Cronbach's alpha of 0.801 and finally the dependent variable of product innovation obtained a score of 0.890. All the variables shows that the Cronbach's alpha is more than or above 0.80, as it can be determined that the overall reliability of the survey questionnaires used in this research is reflect good.

4.3 Inferential Analysis

In order to make a conclusion regarding the population features and characteristics, inferential analysis was used for this research, whereas, it is based on the sample data that collected (Burns & Bush, 2006). Apart from that, it allow us to use to exert the influence of the relationship between independent variables with dependent variable.

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4.3.1 Pearson Correlation Analysis

To measure the correlation, Person Correlation Coefficient is used and it is reflected on the covariance technique. The significant, direction and strength of the bivariate relationship will be specify by this analysis amongst absolutely all the involved variables. That was measured at an interval or ratio level for example organisational capability, knowledge management, perceived organisational support, and organizational culture. The number indicating the Pearson Correlation is stated to as a correlation coefficient. On the other hand, correlations of +1 representing that a flawless relationship among the two variables are exist.

4.3.1.1 Organisational Capability and Product Innovation

Hypothesis 2
H0: There is no significant relationship between organisational capability and product innovation.
H2: There is significant relationship between organisational capability and product innovation.

Table 4.3.1.1.1: Correlation between Organisational Capability and Product Innovation

Correlations

		Product Innovation
Organisational Capability	Pearson Correlation	.932**
	Significant	.000
	N	200

** Correlation is significant at the 0.6 level (2-tailed).
Source: Generated from SAS version 5.1

Direction of Relationship

Based on Table 4.3.1.1.1shows that the organisational capability positive value for correlation coefficient brings a significant relationship between product innovation and organisational capability. The variable of organisational capability has obtained the score of 0.932 correlation with the product innovation variable. Therefore, when organisational capability are high, product innovation is high.

Strength of the Relationship

The value of 0.932 of the correlation coefficient is within the coefficient range from ± 0.71 to ± 0.90. As a result, the relationship between organisational capability and product innovation is high.

Significant of Relationship

The relationship between organisational capability and product innovation is significant. The p-value 0.000 is less than alpha value 0.6. As a result, null hypothesis (H_0) is rejected but an alternate hypothesis (H_1) is accepted.

4.3.1.2 Knowledge Management and Product Innovation

Hypothesis 3

H0: There is no significant relationship between knowledge management and product innovation.

H3: There is significant relationship between knowledge management and product innovation.

Table 4.3.1.2.1: Correlation between Knowledge Management and Product Innovation

Correlations			Product Innovation
Knowledge Management	Pearson Correlation		.935**
	Significant		.000
	N		200

**. Correlation is significant at the 0.6 level (2-tailed).

Source: Generated from SAS version 5.1

Direction of Relationship

Based on Table 4.3.1.2.1 shows that the knowledge management positive value for correlation coefficient brings a significant relationship between product innovation and knowledge management. The variable of knowledge management has obtained a score 0.935 correlation with the product innovation variable. Therefore, when knowledge management are high, product innovation is high.

Strength of the Relationship

The value of 0.935 of this correlation coefficient is within the coefficient range from $\pm$ 0.71 to $\pm$ 0.90. As a result, the relationship between knowledge management and product innovation is high.

Significant of Relationship

The relationship between knowledge management and product innovation is significant. The p-value of 0.000 is less than alpha value 0.6. As a result, null hypothesis (H_0) is rejected but an alternate hypothesis (H_3) is accepted.

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4.3.1.3 Perceived Organisational Support and Product Innovation

Hypothesis 4

H0: There is no significant relationship between perceived organisational support and product innovation.

H4: There is significant relationship between perceived organisational support and product innovation.

Table 4.3.1.3.1: Correlation between Perceived Organisational Support and Product Innovation

Correlations

		Product Innovation
Perceived Organisational Support	Pearson Correlation	.925**
	Sig. (2-tailed)	0
	N	200

**. Correlation is significant at the 0.6 level (2-tailed).

Source: Generated from SAS version 5.1

Direction of Relationship

Based on Table 4.3.1.3.1 shows that the perceived organisational support positive value for correlation coefficient brings a significant relationship between product innovation and perceived organisational support. The variable of organisational capability has obtained a score of 0.925 correlation with the product innovation variable. Therefore, when perceived organisational support are high, product innovation is high.

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Strength of Relationship

The value 0.925 of this correlation coefficient is within the coefficient range from ± 0.71 to ± 0.90. As a result, the relationship between perceived organisational support and product innovation is high.

Significant of Relationship

The relationship between perceived organisational support and product innovation is significant. The p-value 0.000 is less than alpha value 0.6. As a result, null hypothesis (H0) is rejected but an alternate hypothesis (H2) is accepted.

4.3.1.4 Organizational Cultures and Product Innovation

Hypothesis 5

H0: There is no significant relationship between organizational cultures and product innovation.

H5: There is significant relationship between organizational cultures and product innovation.

Table 4.3.1.4.1: Correlation between Organizational Cultures and Product Innovation

Correlations

		Product Innovation
Organizational Cultures	Pearson Correlation	.937**
	Significant	.000
	N	200

**. Correlation is significant at the 0.6 level (2-tailed).

Source: Generated from SAS version 5.1

Direction of Relationship

Based on Table 4.3.1.4.1 shows that the organizational cultures positive value for correlation coefficient brings a significant relationship between product innovation and organizational cultures. The variable of organizational cultures has obtained a score of 0.937 correlation with the product innovation variable. Therefore, when organizational cultures are high, product innovation is high.

Strength of Relationship

The value 0.937 of this correlation coefficient is within coefficient range from ± 0.71 to ± 0.90. As a result, the relationship between organizational cultures and product innovation is high.

Significant of Relationship

The relationship between organizational cultures and product innovation is significant. The p-value 0.000 is less than alpha value 0.6. As a result, null hypothesis (H_0) is rejected but an alternate hypothesis (H_4) is accepted.

4.3.2 Multiple Linear Regression Analysis

When there are more than one independent variable is used to describe the variance regarding the dependent variable and it is called the Multiple Linear Regression.

Hypothesis 1

H0: The four independent variables that consists of: Organisational Capability, Knowledge Management, Perceived Organisational Support (POS) and Organisational Culture are not significant clarifying the variance in Product Innovation.

H1: The four independent variables that consists of: Organisational Capability, Knowledge Management, Perceived Organisational Support (POS) and Organisational Culture are significant clarifying the variance in Product Innovation.

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Table 4.3.2.1: Table of Model Summary of Organisational Capability, Knowledge Management, Perceived Organisational Support (POS) and Organisational Culture

Model	R Square	Adjusted R Square
1	0.9516	0.9506

Source: Developed from research.

a. Independent variable: Organisational Capability, Knowledge Management, Perceived Organisational Support (POS) and Organisational Culture

b. Dependent Variable: Product Innovation

R Square is explained for the explanations for the variations which provided by the independent variables in the dependent variable in the percentage forms. In this research, the variations in dependent variable (Product Innovation) can be explained by independent variables (Organisational Capability, Knowledge Management, Perceived Organisational Support (POS) and Organisational Culture) as much as 95.16%. However, there is the 4.84% (100%-95.16%) are not interpreted in this research study. It shows that there still have other additional variables did not consider in this research in explaining the Product Innovation.

Table 4.3.2.2: Multiple Linear Regression

Model	Parameter Estimated	t	Significance
(Constant)	-0.38681	-7.38	< 0.0001
Organisational Capability	0.34872	8.15	< 0.0001
Knowledge Management	0.46492	8.32	< 0.0001

Perceived Organisational Support	0.18885	3.13	0.0001
Organisational Culture	0.24710	3.97	0.0020

Source: Developed for the research.

As the above table shows that Organisational Capability is significant to predict the Product Innovation, due to it is < 0.0001 which is less than alpha value 0.05. Follow by, Organisational Capability is significant to predict the Product Innovation, due to it is < 0.0001 which is less than alpha value 0.05. Then, Perceived Organisational Support (POS) is significant to predict the Product Innovation, due to it is 0.0001 which is less than alpha value 0.05. Lastly, Perceived Organisational Support is significant to predict the Product Innovation, due to it is 0.0020 which is less than alpha value 0.05.

A linear regression equation is needed to be formed in order to provide the parameter estimate of the output. The linear regression equation for this model is shown beneath:

$$Y = a + b1 (X1) + b2 (X2) + b3 (X3) + b4 (X4)$$

X1 = Independent variable 1

X2 = Independent variable 2

X3 = Independent variable 3

X4 = Independent variable 4

Product Innovation = -0.38681 + [0.34872 (Organisational Capability)] + [0.46492 (Knowledge Management)] + [0.18885 (Perceived Organisational Support)] + [0.24710 (Organisational Culture)]

4.4 Conclusion

In conclusion, from this chapter, central tendencies have been used to measure the ordinal-scaled that measuring the 25 questions with their mean score and standard deviation in this study. Furthermore, we use the reliability test to test all the reliable of the variable. Lastly, Pearson and Multiple Regression Analysis are being used in identify the significance and the relationship of the variables.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter consists of a summary, discussion, implications, limitations and recommendations for this research. It begins with a results' summary for this study which includes descriptive and inferential analyses. Then a discussion on the results is provided. It followed by the implications of this research. The limitation of this study is also discussed. Lastly, recommendations and conclusions are provided.

5.1 Summary of Statistical Analysis

5.1.1 Summary of Descriptive Analysis

Based on the demographic profile, female respondents (53%) are greater than male respondents (47%). It is because our target population mostly are female employees which are more than males. Next is about the age of our respondents. From the results show that majority of our respondents fall on the age 31 to 40 years old (34.50%) and 21 to 30 years old (21%). The lowest age range is 18 to 20 years old (4%).

After that, the race of the respondents had been examined. Chinese race had occupied a large amount which is 67%. It is because most of the respondents are from Chinese firms, so most of them are Chinese, 16% of them are Malay, 12% Indian, and 5% Others. For the highest educational completed, respondents who are Diploma holder had occupied 15% then follow by Bachelor's Degree occupied at 71%, Master's and PhD graduates stands at 10% and others stands at 4%. Our target respondents are executive level, therefore all of them must be highly educated. From the results, there are just 20 of them have Master's Degree level.

From the result showed that the respondents which had married are 53.5%, significantly higher than single 44%, others at 2.5%. In addition, most of the respondents receive their salary below Rm2000 (4.5%), followed by RM2001 to RM3000 (50%). The lowest salary range is RM 6000 and above. The highest percentage of respondent's job type whom are 94% full-time employees. Next followed by 1.5% whom are part-timers and the lowest percentage of 1% whom are internship and others. Lastly, the experience as employees in manufacturing firms also had been examined in the questionnaires. The experience of employees whom have or had work in a manufacturing industry before and based on the data collection, the highest is the range of zero to five years and six to ten years. These two ranges shared equal and highest percentage. The lowest range is above 20 years which is 0%.

5.1.2 Summary of Inferential Statistics

5.1.2.1 Reliability Test

Regarding the reliability test from 200 respondents, all of the variables have reliability above 0.7. It means that the questionnaire for the research is reliable. The coefficient alpha value of organisational capability reliability is 0.837, knowledge management is 0.809, perceived organisational support 0.808 and lastly organisational culture is 0.801. Based on the result indicates that there have good and excellent reliability for all independent variables. For the dependent variable which is product innovation, the alpha value is 0.890.

5.1.2.2 Pearson Correlation Analyses

Pearson Correlation Coefficient is used to measure the relationship of all the variables. Based on the results, showed that all the variables (organisational capability, knowledge management, perceived organisational support, and organisational culture) had significant relationship with product innovation. The highest correlation coefficient value between all the variables is

organisational capability which is 0.93676. Follow by knowledge management get the value of 0.93525, and organisational culture at 0.92533. The lowest correlation coefficient value is organisational culture which is 0.93180.

5.1.2.3 Multiple Regression Analyses

Based on the results from Multiple Regression Analyses, the variable of perceived organisational culture mean score make the highest towards product innovation because it occupied the highest p-value of 0.0020. Next followed by the mean score of organisational culture which scored at 0.0001. Lastly, the lowest is knowledge management and organisational capability which the p-value is <0.0001.

For the results of multiple regression analysis between product innovations, it indicates all the four independent variable which has the p-value scoring of less than 0.05. Therefore this means that the four organisational factors is significant relationship towards product innovation.

5.2 Discussion of Major Findings

Table 5.2.1: Correlation Value between Independent Variables and Job Satisfaction

Hypotheses	Results	Conclusion
H2: There is a positive effect between organisational capabilities and product innovation in Malaysian manufacturing industry.	P = <.0001 R sq= 0.8775	H2 is s accepted
H3: There is a positive effect between knowledge management and product innovation in Malaysian manufacturing industry.	P = <.0001 R sq= 0.8747	H3 is s accepted

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H4: There is a positive effect between perceived organisational supports and product innovation in Malaysian manufacturing industry.	P = 0.0020 R sq= 0.8562	H4 is accepted
H5: There is a positive effect between organisational culture and product innovation in Malaysian manufacturing industry.	P = 0.0001 R sq = 0.8682	H5 is accepted

Source: Developed for the research

5.2.1 Relationship between Organisational Capability and Product Innovation

H2: There is a positive effect between organisational capabilities and product innovation in Malaysian manufacturing industry.

From the table, the hypothesis above obtained the result of P = <.0001. Thus, we could conclude that relationship is significant at P< 0.05 and H2 is accepted.

5.2.2 Relationship between Knowledge Management and Product Innovation

H3: There is a positive effect between knowledge management and product innovation in Malaysian manufacturing industry.

From the table, the hypothesis above obtained the result of P = <.0001. Thus, we could conclude that relationship is significant at P< 0.05 and H2 is accepted.

5.2.3 Relationship between Perceived Organisational Supports and Product Innovation

H4: There is a positive effect between perceived organisational supports and product innovation in Malaysian manufacturing industry.

From the table, the hypothesis above obtained the result of P = 0.0020. Thus, we could conclude that relationship is significant at P< 0.05 and H2 is accepted.

5.2.4 Relationship between Organisational Culture and Product Innovation

H5: There is a positive effect between organisational culture and product innovation in Malaysian manufacturing industry.

From the table, the hypothesis above obtained the result of P = 0.0001. Thus, we could conclude that relationship is significant at P< 0.05 and H2 is accepted.

5.3 Implication of the Study

5.3.1 Managerial Implications

Innovation in many ways has affects how organisation conduct business today, planted deep in the organisational structures, services, products and processes of a firm. Without innovation, organisation will lost its competitive edge and subsequently result in losing customer, market share and profit. According to Drucker (1985), Hitt, Ireland, Camp, and Sexton (2001), Kuratko, Ireland, Covin, and Hornsby (2005), innovations cater firms a tactful orientation to solve the problems they face while attempting to reach continual competitive advantage. Innovation is a concept that not only linked to products and processes, it is also relevant to marketing and firm. OECD Oslo Manual (2005) introduced four different types of innovation, product innovation; process innovation; marketing innovation; and organisational innovation. It requires commitment from top to bottom of the organisation. Akova et al. (1998) stated that in order to succeed, it is necessary to involve strong synergy within the firm and go beyond the firm, customer and suppliers.

With the research came to an end and based on the results obtained, factors include organisational capability, perceived organisational support, knowledge management and organisational culture do have positive effect upon innovation of the Malaysian manufacturing firm. This means that if all four of the factors are being well designed, executed together with adequate supervision, innovation of a firm will greatly turn out to be successful and

eventually increase firm performance, promotion of teamwork and many more to come The findings from this study is momentous and vital as it provide the whole package as to how firm can increase ones innovation, competency, designing adaptive organisational culture that in turn help them to be proactive and flexible when encounter problem or in decision making. This research has explored in what way a firm can alter its organisational capability, perceived organisational support, knowledge management and organisational culture that could subsequently cultivate innovation along with additional emphasis on the significant level of innovation activities which should be executed accordingly.

Company managers should pay attention to every aspect of the organisation, not just primarily on product and service innovation. As mentioned earlier, innovation is a dynamic blend of immense of activities and team work is essential to cater innovativeness of the firm. Innovation program and relevant information should be articulated among all employees and allow employees to have the freedom to convey their ideas as well as discomfort towards the innovation programs. Support from the upper management will generally fasten the progress and setting innovation goals such as make alterations to the product X next year will provide directions and strategic orientation to be made. Reward or give recognition to new ideas or new thoughts and subsequently, employees will voluntarily want to be a part of it. Communication barriers such as status differences, gender differences, cultural differences and prejudices should be removed as it encourages team member to share new ideas more often.

Overall, this research provide firm with a better understanding of the context of innovation and in what manner innovation program should be developed and executed, as well as elevating firm ability in aligning innovation program with the interest of the employee that will nourish employee innovativeness and competitiveness. With successful innovation, firm able to prioritize their market, production and technological approach.

5.4 Limitations of the Study

In order to obtain accurate and precise result, gathering of information, supporting document and conducting survey proven to be the most labour intensive and time consuming part of all. Even though there are quite plentiful conceptual studies and published journal articles, only few studies have closely investigated the effect of organisational capability, knowledge management, perceived organisational support, and organisational culture upon innovation in manufacturing firm.

Some of our design of our questionnaire may not necessary covers the actual measurements from different respondents. For instance, our respondents are categories into job type and working experience, and the targeted group of respondents are different of status and many levels. The design of our questionnaire only cover all the dimensions needed to be measured based on the organisational factors and also product innovation. Hence, different respondents may have a different perception about the factors influencing product innovation. At such, our study is limited up to what we want to measure.

Follow on by the next limitation is our data collection which only focuses on a certain selected locations. In Malaysia, there are 14 states and more than 631,552 companies ("National Survey Innovation", 2012; "Economic Census", 2011). Our sample frame is at Johor, Perak, Pulau Pinang, and Kuala Lumpur. Base on the area coverage our sampling might encounter issues such as not large enough to represent the entire 14 states in Malaysia. Partly because of our sampling techniques is using the geographical and cluster sampling the reason being cost saving, reduce time taken and feasibility of data taken.

Moreover, our research is based on quantitative measurement which uses numerical and analysis approaches to address research objectives through empirical findings (Zikmund et al. 2010). There are some data which requires a qualitative approach

to measure accurately on our research questions. Likewise the participation of respondents are being tested practically using observation, listening, and interpreting method in collecting their responses. Some of the factors which cannot be recorded through single method, and our questionnaire does not necessary give chance for them to voice out their opinion. In future we would like to propose to use a combination method of both quantitative and qualitative methods in collecting sample data.

Furthermore, the number of respondents which we collected might be too small. The female's respondent which has 53% out of total respondents. This data might outrun the total number of male respondents which only has about 47%. Another limitation which is the race of respondents we have majority of Chinese which stands at 67%, 16% of Malays, 12% of Indians and 5% of others respondents. Different race plays an important part in the effects of product innovation as well. The conclusion is that we cannot judge base on the handful of majority respondents whom race is different from others and determine that whichever race is less innovative.

In addition to that, some respondents are reluctant to participate as some may perceived that the questionnaires to be a sensitive subject as it disclose one' firm innovativeness and the general profile of respondents. Even though we have clearly articulate on why we are interested in their firm, some firm are still unwilling to cooperate due to the immense workload on hand and with the celebration of Hari Raya is closing in. Some small and medium manufacturing firms find difficulties in answering the questionnaire and few even requested for a Malay version of questionnaires.

5.5 Recommendations for Future Research

Overall, this detailed research is intended to examine the factors that affect product innovation in Malaysian manufacturing firm. As innovation play an important role in product, service, technology and management aspect of the firm, organisation should and need to understand the nature of innovation and in what manner innovation can be incorporated in firm structure, decision and also harvest one's innovativeness.

Still, there are many factors that could affect product innovation other than organisational capability, perceived organisational support, knowledge management and organisational culture. Researcher should carry out further investigation on what and how product innovation can be affected due to the immense role of innovation play in current business.

There is still room for improvement and farther research to be done, as there are still quite numerous numbers of variables to be tested in the context of product innovation and also in other related field of industry such as agriculture, packaging to name a few. Other possible examples of factor that can affect product innovation include market orientation, information technology, knowledge integration mechanisms and also external factors which include the economy, infrastructure and current trend.

Future researcher may add more number of respondents in order to obtain more precise result which in return better representing the Malaysian population. We can increase the distribution of questionnaire by raising the total number of respondents to be conducted in our research. In addition to that, researchers are also encourages to pick respondents from other industry as well such as textile, telecom and food industries in order to have precise understanding on nature of innovation s. A nations' innovativeness could not be defined, examined and concluded by the result and findings of one singular industry. That why more research on innovativeness of other industry is encourage in order to embarks into technological advancement era.

5.6 Conclusion

Our ultimate objective of this research is to examine the factors that affect product innovation in Malaysian manufacturing firm. The variables that primarily focus in this research are organisational capability perceived organisational support, knowledge management and organisational culture. The research conducted tested on whether these four factors have a direct effect on the product innovation in manufacturing firm and either positive or negative effect between the independent variables and the dependent variables (product innovation) exist or no. Based on the results obtained from the SAS, organisational capability which has the highest alpha value of 0.837253, follow by knowledge management which has alpha value of 0.809377, next which is the perceived organisational support which has alpha value of 0.808308, and lastly has the lowest effect on product innovation is organisational culture and has alpha value of 0.801344.

To sum it up, discussion on the summary of statistical analysis, major findings, implication of the study as well as limitation of the study and the recommendations for future research have been layout and explained in detail. Furthermore, prior researchers have interpreted and discussed on the relationship between independent variable and dependent variable to justify and proven the result we had obtained and generated in Chapter four. Limitation and constraints that we had encountered while conducting the research has also been presented and also recommendations have been given on the probable future area that researchers can be investigated and tested upon.

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APPENDIX 1.0 PERMISSION LETTER

UNIVERSITI TUNKU ABDUL RAHMAN
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

17th June 2015

To Whom It May Concern

Dear Sir/Madam

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Business Administration (Hons)* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

Name of Student	Student ID
Ng Wai Yip	11ABB02126
Hong Ang Hoe	12ABB07175
Lee Jian Yi	12ABB07122
Chia Chee Choong	11ABB03970
Lim Hui Chee	10ABB05931

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

Mr Choong Yuen Onn
Head of Department,
Faculty of Business and Finance
Email: choongyo@utar.edu.my

Mr Fong Chee Yang
Supervisor,
Faculty of Business and Finance
Email: fongcy@utar.edu.my

Address: 9, Jalan Bersatu 13/4, 46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia **Postal Address:** P O Box 11384, 50744 Kuala Lumpur, Malaysia
Tel: (603) 7958 2628 **Fax:** (603) 7956 1923 **Homepage:** http://www.utar.edu.my

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APPENDIX 2.0: QUESTIONNAIRE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS & FINANCE

BACHELORS OF BUSINESS ADMINISTRATION (HONS)

FINAL YEAR PROJECT

The Factors Affecting Product Innovation of Manufacturing Industry in Malaysia

Survey Questionnaire

Dear respondent,

Instructions:

This questionnaire consists of **TWO (2)** sections. Section A and B. Respondents are require to answer **ALL** of the questions. The contents of this questionnaire will be kept strictly **PRIVATE AND CONFIDENTIAL.** Please use either a blue or black pen to tick and circle at appropriate boxes provided.

We are final year students from Universiti Tunku Abdul Rahman, and now currently studying Bachelor of Business Administration (Hons). The purpose of this questionnaire is to study the effects between organisational culture, organisational capability, knowledge management, perceived organisational support and product innovation. We would like to take your time to participate in our research. Please answer **ALL** questions provided in the questionnaire. All responses provided are solely for our research purposes.

CHIA CHEE CHOONG	11ABB03970	016-2880452	CHEECHONG@1UTAR.MY
HONG ANG HOE	12ABB07175	010-3757146	ALEXHONG92@1UTAR.MY
LEE JIAN YI	12ABB07122	016-5926037	JIYILEE5000@1UTAR.MY
LIM HUI CHEE	10ABB05931	010-2703793	JAVILIM@1UTAR.MY
NG WAI YIP	11ABB02126	012-5595700	YIPPIE520@1UTAR.MY

_____

Section A: Demographic Profile

Please provide the following information about yourself by placing a "√" on one of the blank space to assist us in analyzing the responses.

1. Gender:
   - ☐ Female
   - ☐ Male

2. Age:
   - ☐ 18-20
   - ☐ 21-30
   - ☐ 31-40
   - ☐ 41-50
   - ☐ 51 and above

3. Race
   - ☐ Malay
   - ☐ Chinese
   - ☐ Indian
   - ☐ Others: _____(Please Specify)

4. Marital status:
   - ☐ Single
   - ☐ Married
   - ☐ Others: _____(Please Specify)

_____

5. Highest education completed:

(Please specify the fields of study) Eg: Bachelors of Business

Administrations

☐ Diploma _____

☐ Bachelor Degree _____

☐ Master's / PhD Degree _____

☐ Others _____

6. Basic monthly income level:

☐ Below RM 2000

☐ RM 2001 – RM 3000

☐ RM 3001 – RM 4000

☐ RM 4001 – RM 5000

☐ RM 5001 – RM 6000

☐ RM 6001 – RM 7000

☐ Above RM 7000

7. Job Type:

☐ Part - Time

☐ Full Time

☐ Internship

☐ Temporary

☐ Others: _____(Please Specify)

8. Total Working Experience in Manufacturing Firm:

☐ 0 – 5

☐ 6 – 10

☐ 11 – 15

☐ 15 – 20

☐ More than 20 years

_____

Section B: Perception about product innovation

Below are the dimensions about product innovation. Please circle according to the Likert scale which range from strongly disagree, disagree, neutral, agree, and strongly agree with each statement number from 1 to 5, where it indicates as follows:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Definition: The creation & subsequent introduction of a good or service that is either new, or an improved versions of previous goods.

Dimension: Product Innovation	SD	D	N	A	SA
1. Our new products and services are often perceived as very unique by customers.	1	2	3	4	5
2. Our company has introduced more innovative products during the past 5 years.	1	2	3	4	5
3. Our company is rapidly bringing new products or services into the market.	1	2	3	4	5
4. Our new products with functionalities that totally different from the current one.	1	2	3	4	5
5. Our company develop new products with components and different from the current one.	1	2	3	4	5

Definition: Company's ability to manage resources in gaining an advantage over competitors & meeting customer demand.

Dimension: Organisational Capability	SD	D	N	A	SA
1. The objective in our organisation help develops employees' competences towards innovation.	1	2	3	4	5
2. Training program is conducted to improve our ability to enhance the generation of new idea.	1	2	3	4	5
3. My firm had developed new management approaches to fulfill the changing needs of our customers.	1	2	3	4	5
4. My firm's R&D is adequate to handle the development needs of new products.	1	2	3	4	5
5. My firm utilizes different strategy and seek unusual, novel solutions for our customers.	1	2	3	4	5

Definition: The process of capturing, developing, sharing, and efficiently using organizational knowledge.

Dimension: Knowledge Management	SD	D	N	A	SA
1. Employees have skills that contribute to development of new product and opportunities.	1	2	3	4	5
2. There is free flow of relevant information in the organization.	1	2	3	4	5
3. Employees have skills that are needed to maintain high quality products/services	1	2	3	4	5

	SD	D	N	A	SA
4. Employees have skills that enable our company to provide exceptional customer value.	1	2	3	4	5
5. Employees exchange information among each other for solving problems purposes	1	2	3	4	5

Definition: Degree to which employees believe that their organisation values their contribution and cares about their well-being.

Dimension: Perceived Organisational Support	SD	D	N	A	SA
1. My supervisor contributes ideas regarding new product concepts that are helpful for my workgroup.	1	2	3	4	5
2. The management is able to assist me further on new product development.	1	2	3	4	5
3. My company makes wise decisions on new product development in order to be more competitive in the marketplace.	1	2	3	4	5
4. My company provides sufficient resources and information to undergo research for new product generation.	1	2	3	4	5
5. Supportive staff in my workplace has the skills and knowledge to provide effective guidance to the employees in pursuing their research on new product developments.	1	2	3	4	5

Definition: The values and behaviors that contribute to the unique social and psychological environment of an organisation.

Dimension: Organisational Culture	SD	D	N	A	SA
1. Employees with creative ideas are able to improve firm's innovativeness.	1	2	3	4	5
2. My leader established a formal processes and activities to promote innovativeness.	1	2	3	4	5
3. Empowerment enables me to have a sense of ownership and responsibility toward the organisation which result in greater organisational effectiveness.	1	2	3	4	5
4. Group learning enables me to share, acquire, and combine knowledge through experience with one and another.	1	2	3	4	5
5. My firm tends to learn ways to understand and react to their customers needs.	1	2	3	4	5

~ THANK YOU FOR PARTICIPATING IN OUR QUESTIONNAIRE. ~

PERSONAL DATA PROTECTION STATEMENT

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. The purpose for which your personal data may be used are inclusive but not limited to:-

- For assessment of any application to UTAR
- For processing any benefits and services
- For communication purposes
- For advertorial and news
- For general administration and record purposes
- For enhancing the value of education
- For educational and related purposes consequential to UTAR
- For the purpose of our corporate governance
- For consideration as a guarantor for UTAR staff/ student applying for his/ her scholarship loan

2. Your personal data may be transferred and/ or disclosed to third party and/ or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

3. Any personal information retained by UTAR shall be destroyed and/ or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

4. UTAR is committed in ensuring confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

_____

Consent:

1. By submitting this form you hereby authorize and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.

2. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not able to conform our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose

3. You may access and update your personal data by writing to us. (Put group leader's or supervisor's email address).

Acknowledgement of Notice

[ ] I acknowledge consent of Data Protection Act 2010, and fully understood and agreed the Notice of Privacy Practices by UTAR

[ ] I disagree and do not wish my personal data to be processed.

_____

APPENDIX 3.0

Required Sample Size								
	Confidence = 95%				Confidence = 99%			
Population Size	Margin of Error				Margin of Error			
	5%	3.5%	2.5%	1%	5%	3.5%	2.5%	1%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763

APPENDIX 4.0

One-Way Frequencies - Gender

Results

The FREQ Procedure

Gender, 1=Female, 2=Male				
Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	106	53.00	106	53.00
2	94	47.00	200	100.00

One-Way Frequencies - Age

Results

The FREQ Procedure

Age, 1=18-20, 2=21-30, 3=31-40, 4=41-50, 5=More than 51				
Age	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	8	4.00	8	4.00
2	42	21.00	50	25.00
3	69	34.50	119	59.50
4	41	20.50	160	80.00
5	40	20.00	200	100.00

One-Way Frequencies - Race

Results

The FREQ Procedure

Race, 1=Malay, 2=Chinese, 3=Indian, 4= others				
Race	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	32	16.00	32	16.00
2	134	67.00	166	83.00
3	24	12.00	190	95.00
4	10	5.00	200	100.00

One-Way Frequencies - Marital Status

Results

The FREQ Procedure

MS, 1=Single, 2=Married, 3=Others				
Marital Status	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	88	44.00	88	44.00
2	107	53.50	195	97.50
3	5	2.50	200	100.00

One-Way Frequencies - Highest Education Completed

Results

The FREQ Procedure

HEC, 1=Diploma, 2=Bachelor Degee, 3=Master's/PhD Degree, 4=Others				
Highest Education Completed	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	30	15.00	30	15.00
2	142	71.00	172	86.00
3	20	10.00	192	96.00
4	8	4.00	200	100.00

One-Way Frequencies - Basic Monthly Income Level

Results

The FREQ Procedure

Income, 1=Below RM2000, 2=RM2001-RM3000, 3=RM3001-RM4000, 4=RM 4001-RM 5000, 5=RM5001-RM6000, 6=RM6001-RM7000, 7=Above RM7000				
Basic Monthly Income Level	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	9	4.50	9	4.50
2	100	50.00	109	54.50
3	68	34.00	177	88.50
4	8	4.00	185	92.50
5	2	1.00	187	93.50
6	6	3.00	193	96.50
7	7	3.50	200	100.00

One-Way Frequencies - Job Type

Results

The FREQ Procedure

Job Type, 1=Part Time, 2=Full Time, 3=Internship, 4=Temporary, 5=Others				
Job Type	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	3	1.50	3	1.50
2	188	94.00	191	95.50
3	5	2.50	196	98.00
4	2	1.00	198	99.00
5	2	1.00	200	100.00

One-Way Frequencies - Total Working Experience

Results

The FREQ Procedure

TWE, 1=0-5 years, 2=6-10 years, 3=11-15 years, 4=16-20 years, 5=More than 20 years				
Total Working Experience	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	153	76.50	153	76.50
2	39	19.50	192	96.00
3	5	2.50	197	98.50
4	3	1.50	200	100.00

APPENDIX 5.0

Product Innovation Reliability Test - Pilot Test

The CORR Procedure

5 Variables: PIQ1 PIQ2 PIQ3 PIQ4 PIQ5

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
PIQ1	30	3.76667	1.40647	113.00000	1.00000	5.00000	PIQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ2	30	3.73333	1.25762	112.00000	1.00000	5.00000	PIQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ3	30	3.73333	1.28475	112.00000	1.00000	5.00000	PIQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ4	30	3.63333	1.18855	109.00000	1.00000	5.00000	PIQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ5	30	3.46667	1.38298	104.00000	1.00000	5.00000	PIQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.863551
Standardized	0.866452

Cronbach Coefficient Alpha with Deleted Variable					
	Raw Variables		Standardized Variables		
Deleted Variable	Correlation with Total	Alpha	Correlation with Total	Alpha	Label
PIQ1	0.742813	0.819404	0.747063	0.823570	PIQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ2	0.716249	0.827142	0.712348	0.832389	PIQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ3	0.788120	0.808447	0.789538	0.812588	PIQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ4	0.713236	0.829174	0.711437	0.832619	PIQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
PIQ5	0.487912	0.885208	0.494842	0.884533	PIQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Organisational Capability Reliability Test - Pilot Test

The CORR Procedure

5 Variables: OCQ1 OCQ2 OCQ3 OCQ4 OCQ5

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
OCQ1	30	4.16667	1.11675	125.00000	1.00000	5.00000	OCQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ2	30	4.13333	1.00801	124.00000	2.00000	5.00000	OCQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ3	30	4.16667	1.05318	125.00000	2.00000	5.00000	OCQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ4	30	4.03333	0.99943	121.00000	2.00000	5.00000	OCQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ5	30	4.46667	0.73030	134.00000	3.00000	5.00000	OCQ5OCQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.799857
Standardized	0.804586

Cronbach Coefficient Alpha with Deleted Variable					
	Raw Variables		Standardized Variables		
Deleted Variable	Correlation with Total	Alpha	Correlation with Total	Alpha	Label
OCQ1	0.554285	0.773910	0.570475	0.772689	OCQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ2	0.671652	0.732312	0.669878	0.741419	OCQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ3	0.556818	0.770620	0.541756	0.781436	OCQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ4	0.625580	0.747673	0.628353	0.754671	OCQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCQ5	0.538267	0.780069	0.536372	0.783062	OCQ5OCQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Knowledge Management Reliability Test - Pilot Test

The CORR Procedure

5 Variables: KMQ1   KMQ2   KMQ3   KMQ4   KMQ5

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
KMQ1	30	3.06667	1.46059	92.00000	1.00000	5.00000	KMQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ2	30	3.13333	1.16658	94.00000	1.00000	5.00000	KMQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ3	30	3.30000	1.23596	99.00000	1.00000	5.00000	KMQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ4	30	3.23333	1.10433	97.00000	1.00000	5.00000	KMQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ5	30	3.06667	1.25762	92.00000	1.00000	5.00000	KMQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.819546
Standardized	0.823183

Cronbach Coefficient Alpha with Deleted Variable				
	Raw Variables		Standardized Variables	
Deleted Variable	Correlation with Total	Alpha	Correlation with Total	Alpha	Label
KMQ1	0.564421	0.804318	0.562023	0.803989	KMQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ2	0.641271	0.776424	0.621102	0.787002	KMQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ3	0.770326	0.735978	0.780254	0.738736	KMQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ4	0.535636	0.805094	0.542298	0.809551	KMQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
KMQ5	0.575846	0.794482	0.587234	0.796801	KMQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Perceived Organisational Support Reliability Test - Pilot Test

The CORR Procedure

5 Variables: POSQ1   POSQ2   POSQ3   POSQ4   POSQ5

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
POSQ1	30	4.16667	1.14721	125.00000	1.00000	5.00000	POSQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ2	30	4.10000	1.29588	123.00000	1.00000	5.00000	POSQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ3	30	4.30000	0.98786	129.00000	1.00000	5.00000	POSQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ4	30	4.03333	1.24522	121.00000	1.00000	5.00000	POSQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ5	30	4.13333	1.22428	124.00000	1.00000	5.00000	POSQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.736757
Standardized	0.747365

Cronbach Coefficient Alpha with Deleted Variable				
	Raw Variables		Standardized Variables	
Deleted Variable	Correlation with Total	Alpha	Correlation with Total	Alpha	Label
POSQ1	0.705524	0.610996	0.702109	0.628869	POSQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ2	0.028042	0.862834	0.022238	0.860732	POSQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ3	0.480241	0.700538	0.485173	0.712488	POSQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ4	0.691693	0.609724	0.712809	0.624491	POSQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
POSQ5	0.750850	0.584697	0.757268	0.606042	POSQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Organisational Culture Reliability Test - Pilot Test

The CORR Procedure

5 Variables: OCUQ1   OCUQ2   OCUQ3   OCUQ4   OCUQ5

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
OCUQ1	30	3.50000	1.52564	105.00000	1.00000	5.00000	OCUQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ2	30	3.43333	1.38174	103.00000	1.00000	5.00000	OCUQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ3	30	3.86667	1.22428	116.00000	1.00000	5.00000	OCUQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ4	30	3.60000	1.32873	108.00000	1.00000	5.00000	OCUQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ5	30	3.53333	1.38298	106.00000	1.00000	5.00000	OCUQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

Simple Statistics

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.845611
Standardized	0.846048

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
OCUQ1	0.761349	0.782432	0.758647	0.785619	OCUQ1(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ2	0.437945	0.869420	0.422365	0.873390	OCUQ2(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ3	0.642743	0.817991	0.645475	0.816746	OCUQ3(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ4	0.713370	0.798231	0.720984	0.796162	OCUQ4(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)
OCUQ5	0.734784	0.791397	0.740183	0.790811	OCUQ5(1=Strong Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data)

APPENDIX 6.0

Product Innovation Reliability Test

The CORR Procedure

5 Variables: PI1   PI2   PI3   PI4   PI5

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
PI1	200	2.75500	1.42659	551.00000	1.00000	5.00000	PI1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI2	200	2.68000	1.20618	536.00000	1.00000	5.00000	PI2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI3	200	2.60500	1.21918	521.00000	1.00000	5.00000	PI3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, , 99=Missing Data
PI4	200	2.59000	1.31550	518.00000	1.00000	5.00000	PI4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI5	200	2.73500	1.27787	547.00000	1.00000	5.00000	PI5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.890978
Standardized	0.893352

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
PI1	0.659829	0.886947	0.664455	0.886415	PI1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI2	0.749226	0.864573	0.745244	0.868565	PI2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI3	0.805946	0.852064	0.803994	0.855179	PI3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, , 99=Missing Data
PI4	0.807358	0.850074	0.811493	0.853446	PI4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
PI5	0.667371	0.881962	0.670892	0.885017	PI5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Organisational Capability Reliability Test

The CORR Procedure

5 Variables: OC1   OC2   OC3   OC4   OC5

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
OC1	200	2.69500	1.37894	539.00000	1.00000	5.00000	OC1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC2	200	2.69000	1.19627	538.00000	1.00000	5.00000	OC2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC3	200	2.65000	1.19358	530.00000	1.00000	5.00000	OC3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC4	200	2.63000	1.26137	526.00000	1.00000	5.00000	OC4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC5	200	2.81500	1.29970	563.00000	1.00000	5.00000	OC5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.837253
Standardized	0.840035

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
OC1	0.569733	0.806107	0.574146	0.826393	OC1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC2	0.631593	0.806809	0.628857	0.811670	OC2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC3	0.737068	0.778821	0.736294	0.781612	OC3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC4	0.677706	0.793677	0.679343	0.797737	OC4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OC5	0.596792	0.816419	0.602288	0.818869	OC5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Knowledge Management Reliability Test

The CORR Procedure

5 Variables: KM1 KM2 KM3 KM4 KM5

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
KM1	200	2.73000	1.43436	546.00000	1.00000	5.00000	KM1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM2	200	2.64500	1.11589	529.00000	1.00000	5.00000	KM2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM3	200	2.56500	1.18439	513.00000	1.00000	5.00000	KM3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM4	200	2.63500	1.28453	527.00000	1.00000	5.00000	KM4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM5	200	2.69500	1.23678	539.00000	1.00000	5.00000	KM5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.809377
Standardized	0.812774

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
KM1	0.533016	0.797120	0.536380	0.795509	KM1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM2	0.557778	0.784304	0.554249	0.790270	KM2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM3	0.671055	0.751008	0.669733	0.755263	KM3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM4	0.701337	0.738746	0.706005	0.743850	KM4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
KM5	0.542010	0.788465	0.544465	0.793144	KM5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Perceived Organisational Support Reliability Test

The CORR Procedure

5 Variables: POS1 POS2 POS3 POS4 POS5

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
POS1	200	2.68000	1.39547	536.00000	1.00000	5.00000	POS1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS2	200	2.62500	1.15805	525.00000	1.00000	5.00000	POS2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS3	200	2.63000	1.17473	526.00000	1.00000	5.00000	POS3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS4	200	2.63500	1.24883	527.00000	1.00000	5.00000	POS4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS5	200	2.65000	1.25914	530.00000	1.00000	5.00000	POS5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.808308
Standardized	0.812912

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
POS1	0.519425	0.798406	0.526012	0.798735	POS1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS2	0.651933	0.755536	0.647036	0.762530	POS2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS3	0.691914	0.743162	0.688631	0.749578	POS3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS4	0.630618	0.760066	0.637036	0.765605	POS4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
POS5	0.505527	0.798030	0.512966	0.802508	POS5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Organisational Culture Reliability Test

The CORR Procedure

5 Variables:	OCU1	OCU2	OCU3	OCU4	OCU5

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
OCU1	200	2.57500	1.37251	515.00000	1.00000	5.00000	OCU1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU2	200	2.64000	1.16066	528.00000	1.00000	5.00000	OCU2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU3	200	2.62000	1.20117	524.00000	1.00000	5.00000	OCU3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU4	200	2.62500	1.26982	525.00000	1.00000	5.00000	OCU4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU5	200	2.73000	1.27090	546.00000	1.00000	5.00000	OCU5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.801344
Standardized	0.804709

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha	Label
OCU1	0.513659	0.788278	0.518383	0.788646	OCU1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU2	0.616745	0.754710	0.615215	0.759006	OCU2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU3	0.677328	0.735199	0.678006	0.739002	OCU3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU4	0.665147	0.737203	0.668832	0.741964	OCU4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
OCU5	0.471500	0.797998	0.473235	0.801976	OCU5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Pearson Correlation Coefficients, N = 200

Appendix 7.0

Pearson Test

The CORR Procedure

5 Variables:	OCU_MEAN POS_MEAN KM_MEAN OC_MEAN PI_MEAN

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
OCU_MEAN	200	2.63800	0.93838	527.60000	1.00000	5.00000	OCU_MEAN
POS_MEAN	200	2.64400	0.94047	528.80000	1.00000	5.00000	POS_MEAN
KM_MEAN	200	2.65400	0.94592	530.80000	1.00000	5.00000	KM_MEAN
OC_MEAN	200	2.69600	0.98674	539.20000	1.00000	5.00000	OC_MEAN
PI_MEAN	200	2.67300	1.07772	534.60000	1.00000	5.00000	PI_MEAN

Pearson Correlation Coefficients, N = 200 Prob > |r| under H0: Rho=0					
	OCU_MEAN	POS_MEAN	KM_MEAN	OC_MEAN	PI_MEAN
OCU_MEAN	1.00000	0.94992	0.87518	0.87631	0.93180
OCU_MEAN		<.0001	<.0001	<.0001	<.0001
POS_MEAN	0.94992	1.00000	0.86541	0.87374	0.92533
POS_MEAN	<.0001		<.0001	<.0001	<.0001
KM_MEAN	0.87518	0.86541	1.00000	0.88964	0.93525
KM_MEAN	<.0001	<.0001		<.0001	<.0001
OC_MEAN	0.87631	0.87374	0.88964	1.00000	0.93676
OC_MEAN	<.0001	<.0001	<.0001		<.0001
PI_MEAN	0.93180	0.92533	0.93525	0.93676	1.00000
PI_MEAN	<.0001	<.0001	<.0001	<.0001	

Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: PI_MEAN PI_MEAN

Number of Observations Read	200
Number of Observations Used	200

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	219.95021	54.98755	958.74	<.0001
Error	195	11.18399	0.05735		
Corrected Total	199	231.13420			

Root MSE	0.23949	R-Square	0.9516
Dependent Mean	2.67300	Adj R-Sq	0.9506
Coeff Var	8.95947		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-0.38681	0.05239	-7.38	<.0001
OCU_MEAN	OCU_MEAN	1	0.24710	0.06226	3.97	0.0001
POS_MEAN	POS_MEAN	1	0.18885	0.06037	3.13	0.0020
KM_MEAN	KM_MEAN	1	0.36492	0.04385	8.32	<.0001
OC_MEAN	OC_MEAN	1	0.34872	0.04277	8.15	<.0001

APPENDIX 8.0

Product Innovation Tendency

The MEANS Procedure

Variable	Label	Mean	Std Dev	Minimum	Maximum	N
PI1	PI1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.7550000	1.4265871	1.0000000	5.0000000	200
PI2	PI2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6800000	1.2061817	1.0000000	5.0000000	200
PI3	PI3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, , 99=Missing Data	2.6050000	1.2191829	1.0000000	5.0000000	200
PI4	PI4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.5900000	1.3155048	1.0000000	5.0000000	200
PI5	PI5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.7350000	1.2778653	1.0000000	5.0000000	200

Organisational Capabilities Tendency

The MEANS Procedure

Variable	Label	Mean	Std Dev	Minimum	Maximum	N
OC1	OC1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6950000	1.3789425	1.0000000	5.0000000	200
OC2	OC2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6900000	1.1962672	1.0000000	5.0000000	200
OC3	OC3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6500000	1.1935758	1.0000000	5.0000000	200
OC4	OC4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6300000	1.2613704	1.0000000	5.0000000	200
OC5	OC5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.8150000	1.2997004	1.0000000	5.0000000	200

Modify Task (Ctrl-Enter)

Knowledge Management Tendency

The MEANS Procedure

Variable	Label	Mean	Std Dev	Minimum	Maximum	N
KM1	KM1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.7300000	1.4343594	1.0000000	5.0000000	200
KM2	KM2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6450000	1.1158857	1.0000000	5.0000000	200
KM3	KM3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.5650000	1.1843939	1.0000000	5.0000000	200
KM4	KM4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6350000	1.2845330	1.0000000	5.0000000	200
KM5	KM5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6950000	1.2367793	1.0000000	5.0000000	200

POS Tendency

The MEANS Procedure

Variable	Label	Mean	Std Dev	Minimum	Maximum	N
POS1	POS1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6800000	1.3954701	1.0000000	5.0000000	200
POS2	POS2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6250000	1.1580503	1.0000000	5.0000000	200
POS3	POS3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6300000	1.1747340	1.0000000	5.0000000	200
POS4	POS4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6350000	1.2488286	1.0000000	5.0000000	200
POS5	POS5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6500000	1.2591375	1.0000000	5.0000000	200

Organisational Culture Tendency

The MEANS Procedure

Variable	Label	Mean	Std Dev	Minimum	Maximum	N
OCU1	OCU1, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.5750000	1.3725137	1.0000000	5.0000000	200
OCU2	OCU2, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6400000	1.1606617	1.0000000	5.0000000	200
OCU3	OCU3, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6200000	1.2011720	1.0000000	5.0000000	200
OCU4	OCU4, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.6250000	1.2698178	1.0000000	5.0000000	200
OCU5	OCU5, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data	2.7300000	1.2708957	1.0000000	5.0000000	200